

# The Boston Medical and Surgical Journal

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## Original Articles.

### SURGICAL EXPERIENCES IN FRANCE.

BY WILLIAM JASON MIXTER, M.D., BOSTON.

WHEN I arrived at Juilly last February, Hospital B. of the American Ambulance was in running order and filling up fast. It is more often spoken of both in America and in France as Mrs. Whitney's Hospital as it was furnished and is maintained entirely by Mrs. Harry Payne Whitney of New York. The hospital was located in one wing of an old Jesuit college dating from the 12th century, which the French Government had requisitioned. There were no modern conveniences of any kind when Dr. Edward Martin and those associated with him began their work, and the mere fact that when we arrived it was a fully equipped hospital, with large airy wards, operating room, x-ray plant, ample cuisine, laundry, modern plumbing, steam heat and electric lights, shows what these men had accomplished. Juilly is about 30 miles from Paris on the road to Soissons, and is one of the innumerable small villages scattered among the beet fields of that part of France. The trenches lie 35 miles further out, swinging gradually north and east, and passing about 12 miles from Compiègne, which was 40 miles from Juilly. This town to us was the most important place in our vicinity, as it contained the distributing point from which almost all of our patients came.

When a soldier is wounded in the French trenches he has a first aid dressing applied by the medical officer or orderly, and is carried back

as soon as is practicable to the dressing station. Here his dressing is re-enforced, if necessary, and a diagnosis tag tied to his clothing, unless this has been done in the trenches, and, unless moribund, he is sent at once to one of the first line hospitals, or if the wound is slight, and transportation is at hand, to the distributing point in the rear. Here he is again looked over and final disposition made of the case, either to some local hospital in the army zone, or by rail to Paris or some of the larger base hospitals in the south of France. Penetrating wounds of the head, chest or abdomen are usually kept near the front until better able to travel, but most fractures and a certain number of these more serious cases are sent back from the first line. Of course the disposition of a given case depends to a great extent on the severity of the fighting at the moment.

The Palace of Napoleon III at Compiègne has been taken as the centre of hospital activity in this vicinity, and there are many wards for medical cases. The main hallway is entirely devoted to the work of distribution of the sick and wounded, brought here from the dressing stations and hospitals of the first line in the French military ambulances. Three times a week our convoy, usually four ambulances and one staff car, for the chief of ambulances, the doctor and the interpreter, went to Compiègne to receive the cases assigned to us by the major in charge. Those long rides were most interesting at first, but after a time they become somewhat monotonous, although always a change from hospital routine. It seemed strange, indeed, to go spinning along over those wonderful roads and never



FIG. 1.  
Ward at Juilly.

Brigade Marocaine		<input type="radio"/> Ambulance n° 1
M et Prénom: <u>Ahmed ben M'hamed</u>		
Numéro matricule: <u>69.02</u>		
Régiment: <u>Fusiliers 11 C° 2d.</u>		
Diagnostic:		
<p><u>1) Plaie pénétrante de poitrine</u>  <u>per ostium s'obt.</u>  <u>Pas d'orifice de sortie</u>  <u>Origine d'entrée: 5 centimètres au</u>  <u>dessous du sein gauche</u>  <u>- Hémorthorax -</u></p>		
<p><u>2) Plaie du pied droit</u>  <u>Orifice d'entrée: 6 centimètres au dessous de la</u>  <u>malléole interne</u>  <u>Origine de sortie: Au milieu de la plante du pied</u></p>		

FIG. 2.  
Diagnosis Tag.



FIG. 2.  
American ambulances receiving wounded at Compiegne.

meet an automobile, save occasionally some military car or motor-cycle, tearing along at forty, fifty, or even sixty miles an hour. Nothing impresses one as much as the complete absence of motors and of men of military age. If you see one in citizen's clothes you always look twice to see what he is and why he is there.

One rarely sees soldiers, except a certain number ploughing or lounging about the villages. There are no great camps, as the men are all billeted on the villages or housed in barns, store-houses and the like, and this, I am told, is true all through France. Later I did see a few camps back of the English lines, but nothing to what I had expected. Along all the railroads and on every bridge were guards, usually older men of the reserves, clothed in blue coats, buttoned back and the red trousers which have been immortalized by Detaille in his battle pictures of the Franco-Prussian war. It always seems to me that these old men, who do nothing but guard duty from one month's end to the next, have about the most miserable existence possible for a soldier. They are always keenly on the job, however, and you know when you see one step out to the middle of the road ahead of you and raise his rifle horizontally above his head at arm's length, that it is time to stop and have passes examined, or give the *mot*. As this happens every few miles it is easy to see that the passless motor will not get far.

Naturally passes are not given out freely, and to get one it is necessary to go to the headquarters of the army in whose zone you wish to travel, state your business and then, perhaps, you will get the necessary document. Passes for ambulances on a fixed route or in a definite area are given out for two weeks and specify the military number of the car, name and number of the driver, and name or occupation of the passenger (doctor, litter bearer, etc.). No passes given by the headquarters of one army are good in the territory of any other. Travel of all sorts is discouraged, and passes issued by the civil or military authorities are required whenever one

leaves the town in which he holds his *permis de séjour*.

At Juilly a great number of our cases were bullet fractures and severe wounds, not involving the body cavities. The peritoneal wounds, etc., stayed further front, while the minor injuries went further to the rear. Naturally, however, we had a few of both the more severe and the lighter type of wounded. A short time before I left Juilly I had in my ward of 50 beds, 25 bullet fractures, 1 brain abscess, 2 penetrating wounds of the abdomen, 4 penetrating wounds of the chest, and 1 septic knee joint, as well as several flesh wounds, closed fractures and severe sprains. Most of the wounds were caused by shell or shrapnel, with about 15% from rifle balls and a few by hand grenades. I saw only one bayonet wound and no sabre cuts.

Shell fragments and shrapnel almost always become septic, usually from the presence of clothing carried in by the missile, and the removal of the dirty, sodden mass of wool is probably more important than that of the missile itself. We found that it was of the greatest importance to examine the clothing wherever possible, in order to find out just how much we had to search for. Every case was x-rayed at entrance and if it was deemed advisable the missile was often localized later under the fluoroscope or by triangulation with two plates taken at different angles. Taken altogether, it seems to me these cases were chiefly of interest, not from an operative point of view, but as a constantly changing problem in immobilization and sepsis, although the nerve injuries were only slightly less in importance. Nearly all the shell and shrapnel cases were septic, and a moderate number showed clinically the presence of gas bacillus. It seems to me that this infection as a rule was less virulent in France than the few cases it has been my lot to see here at home, free incision almost invariably giving good result.

It has been said, and I believe correctly, that the gas bacillus varies tremendously in virulence, and that if carefully sought for, can be found in 90% of all shell and shrapnel cases. Clinically the case of gas infection is unmistakable,—a dirty gray wound discharging rather thin brownish gray pus, mixed with bubbles of gas, skin around the wound showing a pinkish brown discoloration, later turning to purple or chocolate, often, but not always, with fine crepitus beneath. There is always a peculiar, unpleasant odor to the pus and moderate elevation of temperature. At the suggestion of Dr. Allan Hervey, who had put in a good deal of time in Switzerland, we exposed a considerable number of septic wounds of various sorts, including the gas infection, to graded doses of direct sunlight, beginning with 10 minutes a day, with very gratifying results, as I do not remember a single case that did not improve under this treatment.

The immobilization of these fractures, which are usually complicated with one or two discharging wounds, forms a difficult problem, and



Fig. 4.  
Septic fracture of both bones of forearm.

we found that plaster, either in the form of a bivalve or else with large bows of plaster built over wire netting, was usually the best.

In a certain number of cases, particularly badly comminuted fractures of the femur, a Steinman pin is most useful and is less painful than any other form of traction dressing, while Dr. Joseph Blake's modification of the Thomas splint is also extremely valuable. We did no bone plating, as we did not deem it advisable to open new tissue and traumatize uninjured bone in the presence of severe sepsis, and it should always be remembered that to immobilize successfully in the presence of extreme comminution it is necessary to use a very long plate, thus opening up a very large area for new infection.

Our usual procedure in a fracture case was to put on traction and do nothing to the wound, not even remove the bullet, unless the patient developed sepsis, when the abscess was opened, and bullet, clothing and unattached bone cleaned out as far as possible without opening up any new area. Loose bone fragments attached by periosteum we always left *in situ*, as such fragments make a good trellis for the formation of the callus.

Fractures of the long bones by rifle bullets, although often very extensive, usually remained clean, and we found it was necessary simply to paint the wounds of entrance and exit with Tr. Iodine and treat them as closed fractures. Of course, in a certain number of cases where fragments of bone had been driven out through the skin it was necessary to remove some of the loose pieces. Retained rifle bullets were rare, and usually could be left without danger to the patient. If the bullet had "upset" and small fragments were lying beneath the skin, we made a practice of removing them, but as a rule these did not become infected. In some of the recent articles I have noticed that the writers advised leaving all retained fragments, both bullet, shrapnel and shell, unless they cause abscess formation. We usually removed large fragments



Fig. 5.  
Comminuted fracture of elbow with gas bacillus infection.

of shell and shrapnel ball, which did not involve the body cavities on account of the great danger of sepsis, and I feel, as these operations are usually slight after the missile has been carefully localized, that such a procedure is justifiable. I do feel very strongly, however, that prolonged search with opening up of much uninfective tissue is far more dangerous than a retained ball.

Wounds of the knee joint are not uncommon, and are among the most trying which one has to treat. In the Spanish-American war, and in the Russo-Japanese war, the results in these cases were much better than in the earlier wars, owing to the use of small calibre bullets and antiseptic surgery, but in the fighting in France conditions have changed again, and owing to shrapnel and shell fragments, the old conditions are more nearly approached. This is true more or less in regard to all wounds, and it may be said that the war surgeon now has the problems of those old days. A septic knee joint is a terrible injury, and almost always leads to permanent disability or even death. We found that light traction helped greatly to alleviate the pain, particularly when the wounds were dressed, and I believe that suction drainage, which was suggested by Dr. Carrel is of benefit, although my experience is too limited to speak confidently. I remember very distinctly the suffering of one Morrocan whose patella had been shattered by a large shrapnel ball. I sutured his patella and removed the ball and hoped vainly for a clean result. Low lateral drainage finally resulted in a cure of the septic process and the patella held. When I left he could flex his knee about 15 degrees and had far better function than if the quadriceps had been lost.

As I have said before, the French policy is to keep the most severe type of cases near the front, and the fact that we had only three deaths at Juilly during the time I was there tends to show that the judgment of the French surgeons at the front, both as regards diagnosis and prognosis, was uniformly good.



Fig. 6.  
Chateau Annel.

It was my good fortune after leaving Juilly to spend three weeks in a first line hospital, and during this period to get a little glimpse of the French soldier, and the life immediately behind the firing line. Mr. and Mrs. C. M. Depew have given their chateau, which lies only three miles back of the first line trenches, as a hospital under the auspices of the British Red Cross. Nothing has been omitted which can add to the comfort or well being of the wounded, and yet, as is proper in a first line hospital, expensive and unnecessary equipment has been reduced to a minimum. One wing has been given over to hospital purposes, and the family, doctors, etc., live in the rest of the house.

It seems very unreal to live a quiet, peaceful, country house existence, with the trenches so close that rifle and machine gun fire is distinctly audible, and where one can, by going to the end of the park, watch the French shells bursting on the German gun positions if the artillery is firing. To me, perhaps, the most interesting part of this experience was the more intimate relation into which I was thrown with things military and the French officers. There were few days when we did not see scouting aeroplanes under fire, either French or German, and we soon learned to recognize the German shrapnel bursts by the slight violet tinge to the white smoke. An aeroplane at two thousand yards elevation makes but a small mark, and though the gunners seldom bring one down, the continuous firing keeps the plane so high in the air that accurate observation is difficult in the extreme. I have seldom seen a more striking picture than one of the graceful German *Tauben* silhouetted against a clear blue sky with around and behind it thirty or forty round fleecy puffs of smoke left by a bursting shrapnel.

The cases seen were not unlike those we had at Juilly, except for the larger percentage of severe cases, some of which were moribund when brought to the hospital. It gives a greater sense of reality to see these poor fellows brought in



Fig. 7.  
Ward at Chateau Annel (originally the ball-room).

fresh from the trenches, than even 24 hours later, as they were at Juilly. In fact, all through my stay in France up to my arrival at Chateau Annel the one thing that impressed me was the fact that the war seemed so unreal. Even the presence of troops and guards everywhere along the railroads was not convincing and I never could entirely eliminate the feeling of army manoeuvres.

On my way home I was able to spend a day at Boulogne and so to compare the French and the English. Boulogne is now a city of hospitals, and everywhere you turn you see hurrying ambulances, men in khaki, and Red Cross flags. In the town itself are many hospitals (I think fifteen in all) including the Casino and all the largest hotels, while all through the surrounding country are others, some under canvas, while others are in hotels, factories, etc. The work in the English hospitals seemed to be of a very high grade and in most respects similar to the French. Two differences struck me, however, one that the seriously wounded were being sent back from the first line more rapidly than among the French, the other that there was more specialization, one man doing all cranial work, and so on.

It was impossible for me to go to La Panne to see Dr. Depage and his work, owing to lack of time. Dr. Depage and his wife, who met her death so tragically on the *Lusitania*, meant a great deal to us here in Boston, and my inability to see him was one of my bitterest disappointments.

In looking back on the past four months and endeavoring to summarize in my own mind the surgical impressions I received, I think they fall as follows:—

1. Gun shot wounds do best if left alone as much as possible, unless there is some direct indication for interference.

2. All war wounds except those caused by bullets which do not "upset" will almost certainly go septic.

3. Gun shot fractures, even if septic, show remarkable powers of repair.

4. Military surgery is so different from civil surgery that those of us who would expect to serve, were this country to find itself at war, should have some definite training to fit us for our duties.



Fig. 8.  
Convalescents ready to be sent to the depot.

## THE COMMON SHOULDER INJURIES.

By EDW. H. RISLEY, M.D., F.A.C.S., BOSTON,

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[From the Out-Patient Clinic of the Massachusetts General Hospital.]

It seems advisable from time to time that certain regions of the body should have their pathology and the end results of treatment studied or reviewed in order that our knowledge of the subject be brought up to date and certain obscure lesions further studied and have attention directed to them.

For the past two years it has been the author's privilege to have seen practically all of the cases of shoulder injury or disability treated in all of the rooms of the out-patient department of the Massachusetts General Hospital. These cases have been seen either directly in the two surgical rooms or by courtesy or consultation in the nerve, orthopedic or other departments of the out-patient service. In all some 450 cases have been seen and treated.

A review of these cases is here presented with the especial desire to direct attention to the so-called trivial injuries to the bones of the shoulder joint and to emphasize the fact that often

seemingly trivial or slight bone injury may be productive of very painful incapacity of long duration.

The author also wishes to emphasize the importance of early diagnosis and the payment of due respect, as trouble-makers, to such lesions as are ordinarily regarded as of minor importance, particularly such as injuries to the acromion and the greater tuberosity of the humerus and lesions of the acromio-clavicular articulation, all of which have formerly received scant attention.

The majority of shoulder disabilities are, of course of traumatic origin. This paper will not deal with arthritis except of traumatic origin, nor with diseased conditions, such as tuberculosis, but only with disability due directly or indirectly to trauma.

One very noticeable fact in this review is the great rarity of injuries to the brachial plexus. I think it can safely be said that nerve involvement in shoulder injuries is noticeably rare. Brachial plexus injuries occur only after great violence and rather more often in connection with dislocation than with fracture about the shoulder joint.

The shoulder joint, with its ample protection by large muscles, the laxity of its capsule, not allowing of extreme tension by effusion into the joint, and because of the influence of the weight of the upper extremity in the usual hanging po-

sition, aided by gravity in preventing destructive pressure of joint surfaces against each other after injury, when muscles are in guarding spasm, renders this joint one which is capable of more speedy recovery from injury than most other (weight-bearing) joints of the body.

On the other hand, in shoulder injuries the extent of the bony lesion by no means determines the severity of the immediate symptoms or sequelae. Often no grave lesion is to be found, and yet severe disabling and extremely painful symptoms may persist for many weeks or months, or a seemingly trivial bony lesion may also prolong for many months total incapacity out of all proportion to the extent of the lesion.

In this paper I propose to discuss the common injuries to the shoulder joint, especially from the point of view of treatment and probable duration of disability; as these two points are the ones on which our minds are most liable to be in doubt.

Shoulder injuries are liable to be very puzzling to one inexperienced in their diagnosis. If, however, one examines the shoulder and makes his diagnosis strictly by rigid methods of exclusion he will soon be surprised at the ease with which he can accurately diagnose these seemingly puzzling conditions.

Shoulder injuries group themselves into extra-articular and intra-articular lesions. The extra-articular are often more annoying to treat, though of course of less seriousness than the intra-articular. We believe that the extra-articular lesions merit more attention than they have formerly received.

An analysis of our series shows the order of frequency to be about as follows. This varies considerably with the time of the year.

1. Simple contusion or sprain of shoulder without fracture or other complication.
2. Subacromial bursitis.
  - a. Occupational.
  - b. Traumatic.
3. Secondary to some other injury or infection.
4. Fracture, insertion fracture or contusion of the greater tuberosity of the humerus or acromion.
5. Dislocation of the joint.
6. Ruptured supraspinatus tendon with or without separation of the greater tuberosity.
7. Fracture of the upper end of the humerus.
8. Chronic arthritis of the acromio-clavicular joint.
9. Occupational neuroses or pain (so-called).
10. Arthritis of the shoulder joint.
  - a. Traumatic in origin.
  - b. Old infectious joints.
11. Injuries to the brachial plexus.

The most common injury is simple contusion from falls or other external violence. These may or may not be accompanied by bone bruise, *i.e.* periostitis.

This type of case generally recovers with rest of the part, limiments and massage, in from one to four weeks, provided there is no bone injury.

There is one type of injury which is particularly painful, troublesome to treat and recovers slowly. This is the severe bruising of the greater tuberosity of the humerus, but without fracture. This injury should not be confused with the so-called sprain fracture of Ross and Stewart (to be spoken of later) as there is no separation of bony fragments, but only severe contusion of bone, probably setting up a localized periostitis. The x-ray generally shows slight roughening of the tuberosity, (Fig. 1). This

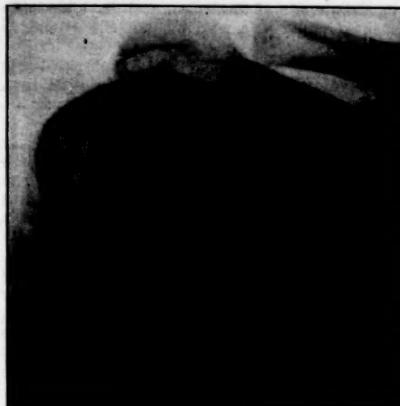


FIG. 1.

Bruising and periostitis of greater tuberosity. Old injury showing considerable localized osteoporosis. A type of injury producing prolonged disability.

injury results in very stiff and painful shoulders for one to three months, and is little affected by external applications or aspirin. They are stubborn to treat, probably because they often develop a bursitis in about one to two weeks after injury, and this adds to the discomfort and limitation of motion.

This injury has its counterpart in a similar bruising of the tip of the acromion, which gives practically the same chain of symptoms, but is less often followed by bursitis, and is nearly as painful and resistant to treatment as injury to the tuberosity.

The treatment consists of rest of the part, strapping, gentle massage with daily baking and very gentle passive motion.

In the clinics of other large hospitals beside our own, fracture of the acromion has been found to be quite common. Ross and Stewart report about 89 cases in 360 odd fractures. Three grades of severity exist.

- a. Well marked fracture with separation.
- b. Separation at the epiphyseal line.

c. Sprain fracture, which is by far the most common.

Sprain or, as we prefer to designate it, insertion fracture, about which it seems pertinent to say a few words at this juncture, is very common also in injuries to the greater tuberosity and occurred in about 30 of our cases.

Sprain fracture was first described by Callender in 1870 as a lesion in which some ligament or tendon is torn, carrying with it a flake or shell of bone into which its fibres are inserted. This injury, as would be supposed, is practically always caused by indirect violence, and is evidenced clinically by sharply localized tenderness and a small localized area of swelling over the immediate site of the lesion, and disability only such as would be caused by the pain attendant on motion.

I prefer the term insertion fracture as being more accurately descriptive of the lesion than the term sprain fracture, which is in no way descriptive of the condition.

X-ray evidence has not yet made it quite clear whether there is at first simply a tearing of a small bit of periosteum away from the bone by the tendinous or ligamentous pull, and that this then begins to proliferate, giving the fairly dense, bony (?) shadow seen, or whether actually more than periosteum is torn away primarily. Certainly in those cases described as "chip off" the greater tuberosity or acromion, the latter holds true. A larger number of x-rays of fresh injuries, followed by further x-ray one to two weeks later will settle this point (Figs. 2 and 3).

This type of fracture can be accurately diagnosed only by the systematic and careful employment of x-ray in all sprains. The x-ray may, however, fail to locate the lesion if it should not happen to be taken in the proper plane.

Acute localized tenderness over a region of tendinous or ligamentous attachment is practically pathognomonic of insertion fracture, however, and this diagnosis can be made whether x-ray verifies it or not.

I am sure that the failure to make a diagnosis of insertion fracture, especially of the greater tuberosity and acromion, has led in large measure to the confusion that commonly exists in regard to lesions of the shoulder joint. Failure to diagnose this injury also leads to wrong treatment and prolongation of the period of incapacity. Treatment should be by absolute rest of the part and practically absolute fixation for one to two weeks, followed by gentle passive motion and massage for one to two weeks longer; three to four weeks should suffice to make the arm useful again.

Definite well marked fractures of the acromion are rarer than the other two types, and are more often accompanied by injuries to the outer end of the clavicle or luxation of the acromio-clavicular or coraco-acromial joints.

The traumatic condition of the tuberosity, which is even more painful and disabling, is well marked in fracture of this part, which is generally accompanied by some rupture of the supraspinatus tendon, or else the tendon, if not torn from its insertion in the tuberosity, pulls the fragment of tuberosity upward, producing noticeable inability to abduct the arm actively from the side and much pain on all motions. The picture without x-ray would, of course, be that of ruptured supraspinatus, but with more pain. Only in rare instances, however, is the separation great enough to warrant attempts to sew the displaced tuberosity down to the head of the humerus again. The two cases in this series operated on with this end in view have practically



FIG. 2.  
Typical insertion fracture of greater tuberosity.  
Marked osteoporosis.



FIG. 3.  
Insertion fracture of greater tuberosity with accompanying bursitis.  
Slight osteoporosis.

perfect results, but with no saving in time over the less radical procedure of putting the arm up in semi-abduction by means of a double internal angular splint, one arm of which rests against the side of the body. (Described by Penhallow and Osgood, *J. A. M. A.*, July 31, 1909, vol. xlvi), and with firm pressure over the tuberosity until fibrous or bony union takes place. These arms are generally useful again in from three to six weeks.

*Subacromial or Subdeltoid Bursitis.* The analysis of this type of cases in our series brings out two points in the etiology of this disease which we believe have not heretofore received much attention, and which are of utmost importance in the understanding of this lesion, its treatment and especially its prognosis. These facts are as follows:—

(a). Subacromial bursitis practically never develops as the result of a fall or strain producing injury to the bursa alone, but practically every case of bursitis, if examined carefully by x-ray, will show one of the following lesions as the cause of the bursitis: fracture, insertion fracture, periostitis or simple contusion of the greater tuberosity or acromion process, hypertrophic arthritis of the acromioclavicular articulation, luxation of the articulation, fracture of the clavicle or fracture of the head of the humerus. An analysis of 200 cases diagnosed as bursitis shows that in 30% of these cases no x-ray was taken, and therefore we believe a positive diagnosis was not made and cannot be made without x-ray in every case. Analysis of the remaining 70% who had x-rays shows the great prevalence of real lesions as the causative factor in producing bursitis. X-ray was negative in only 10 cases. In 25 cases a thickened bursa was shown. In 25 a roughening of the tuber-

osity such as is produced by direct trauma. In 6 cases there was the osteoporosis of trauma. (See Figs. 1, 2, 3.) In 7 some other injury of the greater tuberosity. In 6 actual fracture of tuberosity. In 10 separation of the acromio-clavicular articulation. In 9 fracture of the tip of the acromion. In 7 insertion fracture of the tip of this bone. In 8 arthritis of the acromio-clavicular articulation. (Fig. 6.) In one case apparent calcification of the supraspinatus tendon. In 12 cases calcified nodules in the bursa.

Thus we come to realize that subacromial bursitis is not a lesion of the bursa *per se* as a result of trauma to it, but is practically always secondary to some other neighboring bone or joint involvement.

(b). Nearly 60% of subacromial bursitis are of the occupational type, *i.e.* occurring in such trades as the tailor, cigar maker, telephone operator, shoe-machinery worker, cobbler, etc., or, in other words, those whose occupation requires them to make certain fixed and limited motions with one or both arms. This has been pointed out and explained by Codman in his excellent paper as follows: Certain regular but restricted motions of the arm, as when the cigar maker rolls cigars, produces in the subacromial bursa a constant limited area of friction in the base of the bursa, which, as it proceeds, gradually produces a tuft of inflammatory tissue on the floor of the bursa, and the infringement of this tuft of sensitive tissue on the acromion as the arm is raised or lowered produces the characteristic abduction pain found in these cases.

Several young girls, telephone operators, who use certain limited motions of the arms in "plugging" in their wires into the switch board, have been treated in our clinic for this occupational type of subacromial bursitis and have exhibited the typical picture of pain on motion (especially the occupational motion), referred pain up and down the arm, inability to get arm in a comfortable position at night and limitation of motion due to pain. In these cases there is no swelling, but a point of local tenderness can often be found over the bursa or at the deltoid insertion.

Three forms of treatment will cure the three grades of severity: (a) Rest from one to three weeks will cure the mild cases, but there is always danger of recurrence on resumption of the former occupation; (b) change of occupation when this is possible in more persistent cases not cured by rest; and (c) in stubborn cases and in those who are unable to change their occupation, excision of this inflammatory tuft is the only means of giving sure relief.

This can be done easily and quickly under novocain anesthesia. The bursa is easily exposed through the separated deltoid fibres, opened; the inflammatory tuft, which is practically always demonstrable, even at a distance, to those looking on, or adhesions, which are very common, excised and the wound closed. Mus-



Fig. 6.

Hypertrophic arthritis of acromio-clavicular articulation. A very common cause of obscure and prolonged shoulder disability.

cles which have been in guarding spasm are best rested after operation for three to four days by putting the arm up in abduction. This is readily done by bandaging the forearm to a wooden splint and fastening the splint over the patient's head to the bed post. As soon as the wound is solid, massage, passive and gentle active motions are started and the arm should be ready for use again in three weeks.

The area formerly occupied by the inflammatory tuft now becomes covered with normal scar tissue, which, as it hardens, forms a non-tender impinging surface, which is a better working surface than the older softer(?) bursa floor. The author has not had the opportunity to reopen any of these cases, but as they practically always get relief from operation, even if they return to their former occupation, I think the assumption is correct that this normal scar tissue is a better surface than the irritable bursa floor.

Acute traumatic subacromial bursitis with effusion into the bursa, causing intense pain, is not uncommon. These may also be of infectious origin as instanced by several writers and seven cases in our own series resulting directly from septic foci lower down in the arm or hand.

Cases of acute, infectious subacromial bursitis secondary to infections elsewhere in the body are not at all uncommon. In our series there were three cases following sepsis of mild degree in the fingers or hand, such as septic abrasions or splinters. One case followed a severe burn of the arm. Two cases have been found in patients after scarlet fever and one after an acute gonorrhoeal urethritis. (The bursa was not aspirated in this case and hence no culture was obtained from the infected area, but as no other fact would so well explain the case it seems fair to suspect strongly the gonococcus.)

The pain of bursal distention is so great that the arm is absolutely incapacitated and the spasm of surrounding muscles is great. Five such cases have been aspirated with a small needle with immediate relief of pain and improvement in motion.

If, after trauma, there is no excess of fluid, but acute pain, the use of the actual cautery, making point blisters over the surface of the shoulder, is of great benefit and generally gives immediate and permanent relief in acute cases, but has little lasting influence in chronic cases.

Injection of the chronically inflamed bursa with 70% alcohol has been tried on a small series of cases, but without giving any permanent relief.

The cases of subacromial bursitis secondary to injury of some neighboring structure are generally of the chronic or subacute type and more resistant to treatment. They may persist for several weeks or even months after fracture of the greater tuberosity or slight rupture of the supraspinatus tendon, and are best treated, after the primary injury is healed, by passive motion, baking and massage. Thus the whole disability may extend many weeks after the primary injury is cured.

Several cases of subacromial bursitis, developing rather suddenly after trauma or, in three cases where the patient, a nurse, was worn out physically from a succession of hard cases, showed by x-ray the dense shadows of calcareous deposits in the bursa. There was very acute tenderness over the bursa, but no signs of fluid, pain such as to require repeated doses of morphia and total inability to use the arm for from ten days to three weeks. Figs. 4 and 5 show very interestingly what may happen in such cases. Fig. 4 was taken at the height of the



Fig. 4.

Taken at onset of acute symptoms and showing marked calcareous deposit in subacromial bursa.



Fig. 5.

Same shoulder taken two years later showing complete absorption of deposit in bursa. Patient well.

acute symptoms in October, 1912. Fig. 5 was taken in April, 1915, and shows the total absorption of the calcareous deposits; the patient now being free from symptoms for the past two and one-half years. This x-ray is of great interest and importance in throwing light on the processes taking place in the bursitis.

*Ruptured Supraspinatus Tendon.* These cases are of great interest from the point of view both of diagnosis and results, both with and without operation.

In our out-patient clinic for the past five years there have been 32 cases diagnosed as ruptured supraspinatus tendon. These do not include cases operated on in the House. Of these 32, only 10 have been traced. All of the ten are now well and free from symptoms or disability. Three received out-patient treatment and were then recommended to the House, but were not admitted, and presumably had no treatment except rest and liniments at home. Three that were diagnosed as ruptured supraspinatus by other departments, were operated on by the author and were found to have only firm adhesions in the bursa. Those cases not traced I think we can assume are well or they would have come back for treatment.

From these facts it is evident that the absolute diagnosis of ruptured supraspinatus tendon is not easy to make and probably should be made in only a very few cases until after the subsidence of all other symptoms due to injury of surrounding structures. It seems fair to set a time limit of at least three months after injury before an absolute diagnosis can be made, the reason being that so many other injuries, such as severe strains or contusions to surrounding parts, give symptoms during that time and before their subsidence, identical with those of ruptured tendon. This is why Codman says he never operates on an acute case.

Adhesions in the subacromial bursa are often diagnosed as rupture of the supraspinatus tendon. These cases are operative, however, and therefore a mistake in diagnosis does the patient no harm. I think we can lay down the rule that all fresh cases diagnosed as ruptured supraspinatus and not improving under routine treatment after three months should be subjected to an exploration of the bursa and tendon.

Even cases of much longer standing are often relieved by operation for freeing of adhesions. This is well illustrated by the case of Mrs. M. H., 64 years old. P.H. Fell down stairs fourteen years ago and landed on right shoulder. Acute pain for three weeks. Has never been able to raise arm from side or get it up to head since, but has had little pain except on attempts at motion. Had been to many doctors without relief. P.E. A white haired, stout old lady. Marked atrophy of the right deltoid and spinati. External rotation very painful. Abduction from side possible only for a very few degrees and painful. X-ray shows distinct roughening over the greater tuberosity of the humerus. At op-

eration the bursa was found to contain several strong bands of fibrous tissue which markedly restricted motion. These were excised. One month from time of operation patient could move arm freely in all directions without pain, and in six weeks considered herself perfectly well. Operation November, 1912. Function is now normal.

Several cases of just this type have been operated on and afforded relief from long standing disability.

The symptoms are very similar to those of rupture of the tendon which has for its cardinal signs and symptoms:—

(a) History of trauma, generally a fall with attempt to save oneself, thus causing severe strain of the shoulder.

(b) Inability to abduct arm from side actively.

(c) Inability to hold arm at horizontal against pressure after it has been placed there by the examiner.

(d) Pain, especially at the deltoid insertion, and over the site of the tear in the tendon, on attempts at abduction.

(e) External and internal rotation practically normal.

These are the typical signs of rupture of the supraspinatus tendon. Adhesions alone in the bursa may cause the same chain, but are more liable to be accompanied by more pain on motion and some restriction of the rotary movements.

*Recurrent Dislocation of the Shoulder.* We have had under observation three cases of repeatedly recurring dislocation of the shoulder in epileptics who were under medical treatment, and while only one of these has lately consented to operation and the one case on which T. T. Thomas' anterior capsulorrhaphy was done has now a recurrence, we believe from the study of the anatomy of the shoulder joint, both in the cadaver and the living, and the pathology of the dislocation, that this operation is the one which should in a larger series of cases give satisfactory good results. (*Annals of Surgery*, 1913-1915).

*Arthritis of the Acromioclavicular Joint.* This is a condition very similar in symptomatology to that of bruising or fracture of some degree of the greater tuberosity, especially in its painfulness and resistance to treatment and the later development of a bursitis. It seems to be practically always of traumatic origin, and may be entirely a solitary condition and not associated with arthritis in the shoulder joint or elsewhere in the body. We have seen over 30 cases in which it was a purely non-articular lesion following trauma. (Fig. 6.)

Absolute rest of the part with strapping and Velpeau bandage to restrict the joint entirely, together with baking and gentle massage, without passive motion for from three to eight weeks, may be expected to give relief but not always a cure. Relapses are frequent and the condition is an unsatisfactory one to treat.

*Occupational Neuroses.* Occupational pain *per se* in the shoulder I do not think exists. As this paper deals only with lesions immediately connected with the shoulder joint the consideration of such conditions as brachial plexus neuralgia or neuralgia or neuritis of its branches is not entered into in this discussion.

The occupational pain described in this paper is that arising wholly from lesions involving the shoulder girdle and its component parts.

I believe, however, it is not uncommon in other regions, such as neck, forearm, finger, etc., but the anatomy of the shoulder joint and the *modus operandi* of the production of the lesions thereof preclude such a thing as *occupative* pain or neurosis here. Careful search of such alleged cases will always reveal some such condition as bursitis, arthritis, periostitis or one of the several degrees of fracture of the acromion or greater tuberosity.

Its treatment is that of the underlying lesion. For instance, the tailor who complains of pain in his shoulder and down his arm, does not have this pain only because he is using one arm too continuously, but because he has a subacromial bursitis caused by his certain, regular, restricted motions.

So also the man who sustained a slight fall six months or a year ago, which he had entirely forgotten, and who, after perhaps several weeks of rather harder work than usual begins to have troublesome pain in his arm or shoulder, does not have this pain simply because he has been working harder, but because (as x-ray will often show) he has an arthritis of the acromio-clavicular joint due to the old trauma, or some such underlying lesion.

Cases of this kind, so often diagnosed as occupational neurosis, either because the examiner is not skillful in making the diagnosis of shoulder lesions by exclusion or has failed to have an x-ray, are very common. Only rarely do we find patients whose occupation requires strained efforts on the part of certain muscles. These people, however, may have pain at muscle insertions, and often careful x-ray search will reveal typical insertion fracture at the point of muscle attachment.

*Arthritis.* I can refer here only to the traumatic type. Very few of these cases are seen in the regular surgical clinic as most of them are seen in and treated by the orthopedic department of a large hospital. The subject is a broad one. There have been found, however, in our clinic certain cases which complain of stiff, painful shoulders with marked actual limitation of motion, both active and passive, occurring several months after a more or less severe injury, in which x-ray shows the typical picture of arthritis with bony overgrowth and osteoporosis. These cases have much pain and are resistant to treatment and are sure to result in incapacity of long duration extending over months and even years.

Our experience with forced manipulation, under an anesthetic, in these cases has not given a large percentage of good results, unless the process has entirely quieted down and has remained quiescent for a considerable time, for like the infectious type, they may be stirred into activity by too early motion. After varying lengths of time, from perhaps four to eight months, of relative rest, the joint may be safely manipulated and relief afforded. Earlier cases are sure to be stirred up into renewed activity and have to go through a second long period of fixation and rest before they become useful again.

For patients who can do so the resort to bathing, gentle passive motion and massage affords relief for this type of case in a shorter period than any other form of treatment, as a general rule. This must be persisted in, however, for many weeks continuously in order to be of any value at all. Such systematic and measured treatment and motion as can be obtained in a Zander department, such as the Massachusetts General Hospital affords, is of inestimable value in treating these cases. The economic saving in length of disability afforded by the careful methods of Dr. Hermann Bucholz and his assistants in this department is of incalculable value. The author would like to take this opportunity of thanking Dr. Bucholz for his interest and help in consulting over these often troublesome shoulder disabilities.

*Rupture of the Brachial Plexus.* As was first stated in the first part of this paper, these injuries are of extreme rarity as compared with other injuries to the shoulder joint. The records of the Massachusetts General Hospital show only 30 cases treated in the past fifteen years.

It is believed that operative exploration of the plexus should practically always be employed, provided thorough and systematic treatment by massage and electricity has failed to show improvement after at least three months' trial. Oftentimes early operation will allow of proper suture of torn nerve roots before retraction has taken place, while delay will make the operation exceedingly different or absolutely impossible because of the denseness of scar tissue formation.

In the small series of cases treated here the results from exploration and either freeing of dense scar tissue or suture of ruptured roots have at times been brilliant and at other times absolute failures. Early exposure gives the best results. In this series there were 15 cases of complete rupture, 7 of which were untreated because of the extent of the injury or refusal on the part of the patient. In 4, the exploration only was done, further operative procedure being impossible because of the extent of rupture or of scar tissue. Four cases had suture of the plexus or individual cords. One had an anastomosis of the musculo-spiral and ulnar nerves, with partial relief. The prognosis is not good in most cases. We believe, however, that with earlier operation more cases will be benefited.

## SUMMARY.

In closing we wish to lay emphasis on the following points:—

1. Diagnosis in shoulder injuries is not made by clear cut signs and symptoms, but only in a careful process of exclusion and x-ray examination in *every* case.

2. X-ray is of the utmost importance in every case as it often reveals the underlying cause of a persistent bursitis to be some of the frequent lesions of the greater tuberosity or acromion, which are very often overlooked unless especial search is made for them.

3. About 60% of subacromial bursitis cases are of the occupational type. The remaining 40% have as an underlying cause in the great majority of cases, some lesion of the greater tuberosity or acromion.

4. The diagnosis of ruptured supraspinatus tendon should not be made until at least three months of non-improvement have elapsed.

5. Cases of long standing bursitis with adhesions give a picture identical with that of ruptured supraspinatus tendon and give extremely satisfactory results from operation.

6. Calcareous deposits in the subacromial bursa may be spontaneously absorbed.

7. The term insertion fracture should be substituted for the non-descriptive term of sprain fracture.

8. Occupational neurosis *per se* does not exist in the shoulder joint.

9. Injuries to the brachial plexus are rare. The percentage of patients benefited will be greatly increased by early exploratory operation.

10. Slight injuries to the greater tuberosity and acromion process and arthritis of the acromio-clavicular joint are of far greater importance than generally supposed in prolonging disability after shoulder injuries.

11. The author wishes to lay especial emphasis on the importance of these seemingly trivial injuries to the shoulder joint as factors to be considered in diagnosis, prognosis and treatment.

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#### TECHNIC OF TRANSFUSION BY MEANS OF GLASS TUBES.\*

By A. R. KIMPTON, M.D., BOSTON,  
AND  
J. HOWARD BROWN, M.S., BOSTON.

The following method of transfusion is one of the many indirect methods and is now very broadly used. Recently descriptions of glass tubes closely resembling this one, but leaving out essential features, have been published. The method requires an incision, but can be combined with needle operations if desired, by merely cutting the cannula end of the tube flush and fitting

it into a needle. This method meets the requirements of any case, whereas when using needles, cases arise where no vein can be seen. The use of sodium citrate was discussed at the time of introducing this tube, but it is absolutely unnecessary and therefore is not advisable. I have by this method transfused more than 70 cases, including a great many new born babies, and a failure to transfuse the patient has not been encountered.

*Technic.* The skin over veins just below the elbow in the arm of the donor and recipient is injected with novocaine. The veins are exposed cleanly through incisions not over  $1\frac{1}{2}$  inches long. Two ligatures are placed under the veins, but not tied, one above and one below. A tourniquet is now placed on the donor's arm tight enough to give venous congestion and still allow arterial blood to flow in. This vein is now tied off proximally, and the distal ligature is left to be used as a clamp by merely raising it a little after the vein is opened. If there is no assistant present, the weight of a hemostat hanging from the ligature will control the vein.

The donor's vein is now transfixed by a cataract knife and a slit made. The cannula of a tube is inserted into the vein of the donor and held upright until filled by venous pressure. (Fig. 1.) This usually takes not over two or



FIG. 1.

three minutes for a 250 c.c. tube. If not filling well it probably means that the tourniquet is too tight, or that the end of the cannula is against a valve or the side of the vein. The donor is instructed to shut and open his hand tightly and slowly. This, perhaps, hastens the inflow.

While the tube is filling, the vein of the recipient (without the aid of a tourniquet) is tied off distally, the proximal ligature being used as a clamp, and the vein opened. By this time the tube is full and the tourniquet having been loosened, is withdrawn and held on its side with the side-tube uppermost to prevent the blood from running out. (Thumb over end of side-tube, finger over cork, Fig. 2.) The cannula is now inserted into the vein of the recipient and held in an upright position. (Thumb under side-

\* From the *Harvard Medical Bulletin*, page 34, May, 1915.

bar at junction with cylinder, finger over cork. (Fig. 2.) (Fig. 4.) Be sure the vein of the re-



FIG. 2.

ipient is bleeding before inserting cannula.) The little angular forceps is a great aid in introducing the cannula into the vein, especially when the lumen is small. (Fig. 3.) An actual can-



FIG. 3.

tery bulb is attached to the side-bar, and by a little pressure the tube is emptied. (Fig. 4.)



FIG. 4.

The cannula is withdrawn while there is still a little blood left in it. More tubes may be filled and emptied if desired, using the same veins. Pointing the cannula toward the hand of the donor is better than toward the heart, though both ways may be used. The veins are usually tied and cut, but if desired the slit may be sutured. If arterial blood is to be preferred the radial artery of the donor may be used, as was originally done.

Another use for the tube is in bleeding a patient. For this purpose the tube is used as in the donor's arm and when full the cork end is depressed, the blood emptied and the tube again

raised, without removing the cannula from the vein. The tube may in this way be filled and emptied a number of times and without removal from the vein.

As to the vein best to use in the recipient: if the patient is very thin I am in the habit of using the internal saphenous vein, in fact it is my preference under most conditions. At the same time, the vein in the arm is perfectly suitable. Using any means of suction in filling the tube seems to be of no advantage as the tubes fill readily. Furthermore, the walls of the vein can easily be collapsed by a little too much suction. The pump is boiled and therefore the operator can handle it himself.

*Paraffining the Tubes.* The tube is wrapped in a towel and sheet wadding, sterilized in an autoclave, and the paraffin mixture is sterilized either by boiling in a water bath or in the autoclave. (Vincent's mixture, stearin, paraffin, and vaseline in the proportions of 1-2-2. 54 degree paraffin may be used as well.) Personally I always keep my tubes paraffined ready for use, and they are paraffined by a nurse. Having scrubbed up, someone lays open a sterile package, the paraffin is kept melted in a water bath, and the tube is equally and moderately heated over one or two alcohol flames. (Not too hot. I find a Bunsen burner too hot.) Then remove the cork and pour in a lot of the melted mixture, the more the easier to do (50-60 c.c. for a large tube.) Allow this melted mixture to run around inside the tube and over the surface of the cork, and a little to run out of the cannula. Then turn it upside down in such a way as to allow all the paraffin to run back into the tube and out the side-bar into the paraffin jar. With a teaspoon seal the junction of the cork and glass on the outside with paraffin. It is much better and easier to let the paraffin run back out of the cannula than to suck out the last drop with a piece of gauze, as first described. Take an alcohol sponge and rub over the tube that it may cool more quickly.

The tube is now replaced in the sterile package and pinned up ready for use. I always clean my own tubes, and there is no necessity for breaking them. However, should a cannula happen to be broken, it can be repaired.

*Cleansing.* If you have very hot running water the tube can be cleansed with the greatest ease. If you allow the blood to stand in the tubes, or the tubes are left in water, it will be difficult. When through with the transfusion, have steaming hot water from the tap run through the tubes. I do this before removing my gloves. First, allow the water to run through the cannula end so that the paraffin melts and carries the blood back with it into the tube. The cork being removed, the water is allowed to run out. The rest of the paraffin is cleaned out in the same manner. Then, pouring in some tincture of green soap with the hot water, shaking the tube, and afterward rinsing until the tube is

clean, is all that is necessary. The tube is then pinned up ready to be re-sterilized.

[P. S. One criticism of this method has been that the veins are tied off, and another, that it is necessary to make incisions.

In regard to the first criticism, I no longer tie off the veins, but make a small slit in the vein, and at the end of the operation I tie this slit off laterally with fine silk. With rare exceptions this can be done, leaving this vein intact.

In regard to the second criticism, cases certainly arise that are so badly bled out that it is practically impossible to insert a needle into a vein, and, therefore, an incision is necessary even with the needle methods.

Again, we all know that at times much difficulty arises in inserting needles even into well-distended veins. A small incision makes the method certain and accurate. Recently I have had the opportunity to transfuse a patient by bringing out all these points, the patient having previously been transfused in another city by syringe methods. In this case it had been necessary, by the syringe method, to cut down on the vein of the recipient, and there also had been much difficulty encountered with the vein of the donor, so that the operation by the needle method lasted about two hours, while the operation by the above method, giving practically the same amount of blood, lasted fourteen minutes. In cases such as this, shortening of the operation is a decided advantage].

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THE USE OF THE SCHICK TEST IN A CHILDREN'S INSTITUTION.

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AND

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DURING the months of October and November, owing to the prevalence of diphtheria in Boston, it was suggested that all the children in the Home for Jewish Children in Dorchester, one hundred and twenty-six in number at that time, be immunized by prophylactic doses of antitoxin. The occurrence of a case of communicable disease in this Home is a very serious matter, inasmuch as all the children are excluded from school for a period corresponding to the incubation period of the disease, and the children are thus deprived of their schooling for consider-

able lengths of time, even if the child afflicted with the disease is immediately removed from the Home. While the immunity conferred by antitoxin is not lasting, it was thought that by thus immunizing the children and tiding over the period of the prevalence of the disease, the chances of the occurrence of cases of diphtheria in the Home would be minimized.

Recent researches, particularly those of Schick of Vienna and Park of New York, had shown that large percentages of children, varying from 50 to 80%, possess sufficient antitoxin in their blood serum to make them immune to diphtheria. The administration of antitoxin to all the inmates of the Home would therefore have meant that many children who were naturally immune would have been subjected to this needless procedure. To separate the immune from those susceptible to diphtheria we utilized the test devised by Schick for that purpose.

The Schick test consists of injecting under the superficial layer of the skin, usually on the flexor surface of the upper arm, one-fiftieth of the dose of diphtheria toxin required to kill a guinea-pig of two hundred and fifty grams. Schick originally used 0.1 c.c. of normal salt solution for the dilution of the toxin. We followed the modification of Park of New York who used 0.2 c.c. of normal salt solution as a diluent. A fine short pointed platinum needle was used for the injection. A raised bleb appears at the point of the injection, which disappears in a few minutes. Within twenty-four to forty-eight hours after injection a fairly well circumscribed area, bright red, with a pale, slightly indurated center, appears at the site of the injection in individuals susceptible to diphtheria. This reddened area blanches on pressure and on stretching of the skin. It is, therefore, important in examining for the reaction, to flex the arm, otherwise the stretching of the skin of the extended arm may cause a well-marked reaction to disappear. We noted in a great many of the cases, on stretching the skin and blanching the reaction, a faint circle of pigmentation around the point of inoculation well within the circumscribed area of redness. The degree of the reaction varies inversely to the antitoxin contents of the blood, and we had all grades of reaction, from very mild to well marked. The variation, consists chiefly in the size of the area of redness and in the intensity of the coloration. This reaction lasts for several days, and gradually fades, leaves a pigmented, slightly scaling area which may persist for two weeks or more. The reaction is not accompanied by any constitutional symptoms or local discomfort. All the children who gave positive reactions, whether strong or mild, were given immunizing doses of 750 units of antitoxin, and their susceptibility tested again at various intervals, by the further administration of toxin. We found that after four weeks 50% of those to whom antitoxin had been administered, gave a positive reaction, indicating the disappearance of the immunity conferred by the

antitoxin. In several cases the immunity persisted after eight weeks, and in six of the children immunity still persists, five months after the administration of the antitoxin.

Previous to starting the tests, cultures were taken from the noses and throats of all the children. Three carriers were discovered; two of these gave negative Schick reactions. One of the carriers gave a positive reaction; on testing out the organism, however, it was found to be avirulent.

TABLE SHOWING RESULTS OF THE SCHICK TEST.

Age.	No. of Cases.	Number Positive.	Number Negative.
5	1	1	0
6	6	3	3
7	10	2	8
8	20	9	11
9	9	2	7
10	20	4	16
11	17	6	11
12	13	2	11
13	12	5	7
14	11	2	9
15	4	0	4
16	3	0	3

Of the total one hundred and twenty-six children only thirty-six, or approximately 29%, gave positive reactions. Ninety, or 71%, showed themselves by the negative tests to be immune to diphtheria. Instead of administering antitoxin to one hundred and twenty-six children we had to give it only to thirty-six, and thus saved for the state considerable antitoxin and avoided the subjecting of the immune children to the annoyance and the danger, however remote, of the unpleasant effects that are apt to follow the administration of horse serum.

Five months after our first test, we injected again diphtheria toxin to all the children and we found our results strikingly uniform with our first tests, with the following exceptions:

Six of the children who on the first examination gave positive reactions, and who received immunizing doses of antitoxin, gave, five months later, negative reactions, showing the persistence of the antitoxin immunity. Of these, two were eight years old, one nine years old, two ten years old, and one eleven years old. One child fourteen years old, who gave a negative reaction on our first examination, gave a positive reaction on the second examination. With the exception of this last case all the children who gave negative reactions the first time, gave negative reactions on the second test five months later.

We are unable to explain the one case which showed itself immune on our first test and was found susceptible in a subsequent examination five months later.

From the general uniformity of the reaction at an interval of five months this test is of practical value in all the children's institutions, even in the absence of diphtheria. A record can be kept as to which of the children are immune

and which are susceptible. Antitoxin could then be promptly administered to the non-immunes should a case of diphtheria occur in the institution.

A fact worthy of note is the persistence of immunity in six children for as long a period as five months after the administration of antitoxin. We expect to keep these children under observation and test their immunity from time to time.

## SUMMARY.

1. Of one hundred and twenty-six children, ranging in age from 5-16 years, thirty-six were found susceptible to diphtheria and ninety were found immune.

2. Antitoxin of 750 units administered to the non-immune produced an immunity which did not last over four weeks in 50%, in several as long as eight weeks, and in six children the immunity conferred by the antitoxin persisted after five months.

3. With the exception of the six children with the persistent antitoxin immunity and one child who gave negative reaction the first time and a positive the second time, the results of two tests, five months apart, were uniform.

4. The test is of great value in determining susceptibility to the disease and thus serves as a guide to determine in the event of exposure to diphtheria, who should and who should not receive prophylactic doses of antitoxin. Persons naturally immune will thus be saved the annoyance and the possible disagreeable results apt to follow the injection of horse serum.

In carrying out this work we are indebted to the State Department of Health for furnishing us the diphtheria toxin and to the Boston Health Department, who examined all our cultures and tested the diphtheria organisms for virulence.

## Clinical Department.

## A CASE OF ANTERIOR POLIOMYELITIS WITH MULTIPLE PARALYSES, INCLUDING THE HITHERTO UNRECORDED INVOLVEMENT OF THE LEFT DIAPHRAGM.\*

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Junior Assistant Visiting Physician at the Children's Hospital, Boston; Instructor in Pediatrics at Harvard University.

[From the Medical Service of the Children's Hospital.]

It is not often, in a hospital like the Children's, that a patient may go through various services and departments for a period of several months with a mistaken or incomplete diagnosis.

\* Received for publication on May 31, 1915.

This case is unique in being the only one of its kind on record, despite a comprehensive search of the literature, a case presenting rare difficulties of diagnosis owing to an unusual combination of signs and conditions, which obscured the complete picture through several services at our hospital, and cleared up finally, when obscuring conditions had ceased, making the diagnosis obvious.

Following is the case:—

J. B. Male, aged 4. Entered the orthopedic outpatient department of the Children's Hospital March 4, 1914, with the following history:—

*Family History.* Parents well, 5 brothers and 3 sisters well, no deaths, miscarriages or contagious diseases, no exposure to tuberculosis.

*Past History.* Full term. Normal delivery. Breast fed one year, measles at 4.

*Present Illness.* In November, 1913, had what was called "gastritis," following which both legs became useless. Has improved slowly but steadily since. Lately has seemed feverish.

*Physical Examination.* Physical examination shows fleshy, pale child, temperature 100. Left lower lung has an area of dullness, bronchial breathing and bronchial voice sounds; respiration 36. Otherwise negative except for legs. Legs both thin, fleshy, atrophied. Left: fair power in thigh, slight in quadriceps. Foot: long extensors and peroneals have some power, tendo Achillis markedly contracted. Foot in equinovarus. Right: only slight power in flexors of thigh, none in adductors, little in adductors, none in quadriceps. Foot held in stiff equinus, from tendo Achillis contraction. Hips in place, no flexor deformities.

*Diagnosis.* Old infantile paralysis of both legs, question of pneumonia. Referred to House Medical. Entered the medical service of the late Dr. Rotch, where the following additional physical findings were noted. Lungs: left back, from apex to midscapula, dull with bronchial breathing; from angle of scapula to base, dull with diminished bronchial breathing and medium moist rales. Liver 1½ cm. below costal border. Right knee jerk present, Kernig present on both sides, no Babinski or clonus. White count 16,000; hgb. 75.

*Diagnosis.* Pneumonia, question of fluid, old infantile paralysis.

March 6. Aspiration left chest, no fluid obtained.

March 7. Comfortable, hungry, signs same, discharged home (in country).

*Diagnosis.* Unresolved pneumonia.

April 11, 1914. Returned to the hospital with the following story: Was pretty well after discharge, but has had more cough in the day-time than before, no whoop or croup; has had no fever, but much eoryza. Physical examination showed 20 teeth, tonsils very much enlarged, few small glands of the neck. Chest symmetrical in shape and expansion, no bulging, heart 1.5 by 7 cm. Lungs resonant throughout; coarse, moist rales throughout. D'Espeine's sign to the 5th thoracic vertebra. Abdomen soft, tympanitic, liver 2 cm. down, spleen not felt. Abdominal wall very lax, extremities as at previous note, except that tendo Achillis contractions were more pronounced, reflexes: P. = and R. to L. and D. Right knee jerk present, left absent; no Kernig or Babinski, no clonus. White count 16,300. Von Pirquet negative.

April 12. Left base dull with distant breathing, many rales, breath sounds diminished.

April 13. Left chest a little more dull than right. Marked difference in respiration, which is barely heard on the left, much more air entering right than left. Heart 3½ cm. to right. Abdomen very much distended.

*Diagnosis.* Probable pleurisy with effusion in the past with present adhesions, fibrosis (?). On the same day the case was used for teaching, and the following diagnoses were considered:—

- (1) Blocked bronchus.
- (2) Pneumothorax.
- (3) Thickened pleura.
- (4) (and most probable) Bronchiectasis and emphysema.

On orthopedic consultation, paralysis of left intercostals was considered. Sputum examined, negative for T. B.

April 15. Air enters both sides alike; percussion on left side, modified tympany.

April 23. Note on lungs. Fremitus increased at angle of scapula to left axilla. Tympany marked from left axilla to base behind and to ant. ax. line. Fremitus here slightly less. Just inside spine of scapula, breath sounds are broncho-vesicular; below, breath sounds are clear but very faint.

April 27. Lung note. Left, normal resonance above, increasing to tympany at about angle of scapula, strikingly similar and continuous with abdominal tympany; breath sounds clear but very much diminished over tympanic area; lower border of lung not made out. X-rays M 1468 and M 1469 show hollow viscera, containing much gas, no bismuth, behind heart shadow and into left axilla to third space. Diaphragmatic shadow not made out. (Photo "A.")

April 29. Fluoroscopic report, Dr. Holmes. Fluoroscopy shows high, rigid diaphragm on left at level of 4th rib in front; above, lung is clear. Heart displaced to right; below diaphragm is a large gas bubble.



ble, apparently in transverse colon. The amount of gas is unusual. Stomach is empty.

*Diagnosis.* Paralysis of left diaphragm and relaxation of the bowel.

The difficulties attending the complete diagnosis (as far as the diaphragm is concerned) in this case were obviously due to the changing conditions, whose physical characteristics were such as to mask any symptoms or signs referable to the diaphragm. It is reasonable to suppose that the following conditions occurred in the order named:—

First. Paralysis of diaphragm was present from the beginning and concomitant with the other paralyses noted.

Second. A broncho- or lobar pneumonia occurred in which: (a) the lung expanded and pushed the diaphragm down, (b) dullness resulting therefrom masked any signs referable to the diaphragm.

Third. Delayed resolution over a long period still masked the diaphragm.

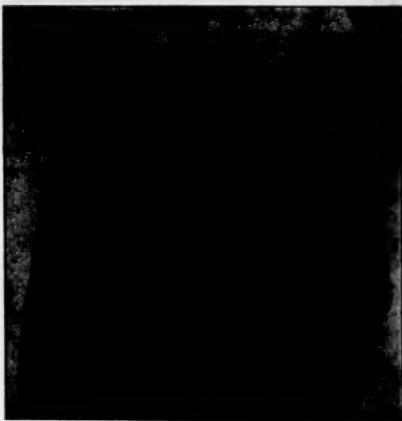
Fourth. Complete resolution allowed the diaphragm to be pushed up by the gas in the intestines, thus revealing the true condition.

In November, 1914, the child reentered the orthopedic service for tendon transplantation, when another physical examination and another x-ray showed conditions practically as on April 27. (Photo "B.")

April 9, 1915. Has been pretty well since last visit, has gained in weight and had only one cold last winter. Has no pain in legs but cannot use them. Abdomen usually protuberant, but pretty flat

away respiration. Litten's sign doubtful, very much less air enters left than right lung.

Muscular effort of shoulder girdle and intercostals is apparently the largest factor in respiration on the left. There is now a distinct groove along the 7th, 8th, and 9th ribs in front, producing a shallow, wide depression. Heart 3½ cm. to right of mid-sternum. Left border not made out, owing to tympany. Abdomen slightly distended, very lax. Left side wholly paralyzed, right, no reflex in middle segment of rectus. Distinct bulge to left when sitting. Liver extends to costal border, (X-ray "C," and photograph "D").



some of the time. Lungs: right, no abnormalities; left: base, tympany to third space in front with absent respiration; base in back from mid-axillary line, slightly dull to the 8th rib with diminished far-



*Final Diagnosis.* Anterior poliomyelitis resulting in multiple paralyses, including the hitherto unrecorded involvement of the left diaphragm.

FIG. D.

## AURICULAR FIBRILLATION AND COMPLETE HEART-BLOCK.

By PAUL DUDLEY WHITE, M.D., BOSTON.

[From the Massachusetts General Hospital, Boston.]

The coexistence of complete heart-block and fibrillation of the auricles is uncommon. In 1913, Gallavardin and Dufourt recorded a case and cited thirteen other cases in the literature. The present report is made of a patient with auricular fibrillation in whom, during the administration of digitalis, there was a decrease in the degree of heart-block from complete to partial, accompanied by a change in the character of the ventricular complexes of the electrocardiogram and coincident with marked improvement in the patient's condition. The *R* deflection became more acute and of greater amplitude and the *T* deflection flattened.

**CASE REPORT.** E. H. B., 54 years of age. Family and past history unimportant except for an attack of "rheumatism" in 1904. Lues denied. Little tobacco; very little alcohol.

Cardiac symptoms began in 1908 with palpitation off and on. Dyspnea on exertion during the past year. Left sided hemiplegia April 30, 1912. At this time his pulse was slow, but there is no record of its rate or rhythm. The hemiplegia did not clear up for months, but at present (April, 1915) there is no sign of it. In April, 1914, an irregular pulse of 100 was found and digitalis was given. After three weeks, during which the tincture was administered in the dosage of 15 to 30 drops daily, a pulse rate of 28 was found and the digitalis was discontinued. On Oct. 21, 1914, because of distress on exertion, the patient consulted Dr. Putnam, who discovered an irregular pulse of 44, six months since the last digitalis had been taken. From this time until the middle of January digitalis was given in the dosage of gram 0.1 to 0.3 daily. On the 14th of November the pulse was 28 and regular; on the 20th it was 26, and on this date the blood pressure was 135 mm. mercury systolic and 75 mm. diastolic. On November 25 an electrocardiogram (Fig. 2) and a polygram (Fig. 1) showed a complete heart-block with a ventricular rate of 27 and auricular fibrillation. At this time

the patient felt very badly and was dyspneic and weak. Rest in bed and continuation of the digitalis resulted in pronounced improvement in the general condition coincident with a gradual rise in pulse rate. On Jan. 6, 1915, another electrocardiogram (Fig. 3) was taken; this showed an irregular ventricular rate of 47 per minute, with persistence of the auricular fibrillation. In the electrocardiogram the change in the character of the ventricular complexes is clear. On April 10, 1915, the heart rate was regular at 35, and on April 27, two months since any digitalis had been taken, an electrocardiogram showed a regular ventricular action at 37 with auricular fibrillation. On this latest date the patient felt well and was able to work in his garden. Atropin gr. 1-50th injected subcutaneously produced no increase in rate while the pulse was regular at a rate of 43 on May 24, 1915. Dryness of the mouth was marked one-half to one hour after the atropin. Exercise also failed to change the rate.

Physical examination April 10, 1915, showed a large heart with apex impulse felt in the sixth space and with a loud rough systolic murmur heard at the apex. No thrill. No increase in supraventricular dullness. No edema. Pupils reacted normally. Knee jerks present and equal. Grips equal. Wassermann test negative.

## SUMMARY.

In a patient showing heart-block and auricular fibrillation the heart rate rose from 27 with complete block, to 47 with partial block during the administration of digitalis and coincident with marked clinical improvement. The ventricular complexes of the electrocardiogram changed in character simultaneously with the decrease in the degree of block, the change in the *R* suggesting a more normal conduction in the ventricle.

The spontaneous return to a complete block has been accompanied by a continuation of the patient's good health.

The block is not vagal in origin, atropin having no influence on it.

Drs. W. H. Smith and Ralph Putnam very kindly made possible the report of this case.

## REFERENCE.

Gallavardin, L., and Dufourt, P.: Bull. Soc. méd. d. hôp. de Lyon, 1913, Vol. xi.

Fig. 1.



FIG. 1.—Polygram of patient taken November 25, 1914. Jugular pulse above, radial pulse below. Note coarse fibrillation waves in the jugular record (fff). Time interval, 0.2 second.

Fig. 2.

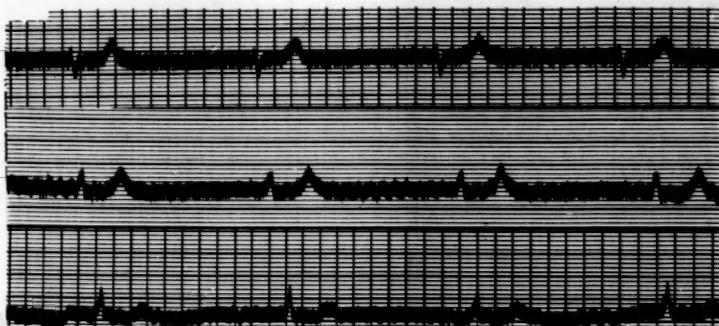


FIG. 2.—Electrocardiogram taken November 25, 1914.  
 A. Lead I.      B. Lead II.      C. Lead III.  
 Abscissae 0.2 seconds; ordinates  $10^{-4}$  volts.

Fig. 3.

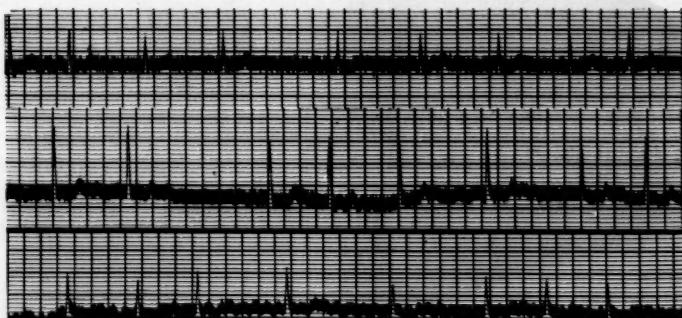


FIG. 3.—Electrocardiogram taken January 6, 1915.  
 A. Lead I.      B. Lead II.      C. Lead III.  
 Abscissae 0.2 seconds; ordinates  $10^{-4}$  volts.

### New Instruments.

#### SUCTION AND IRRIGATION APPARATUS FOR THE DIAGNOSIS AND TREAT- MENT OF THE ANTRUM OF HIGHMORE.

BY JOSEPH PRENN, M.D., BOSTON.

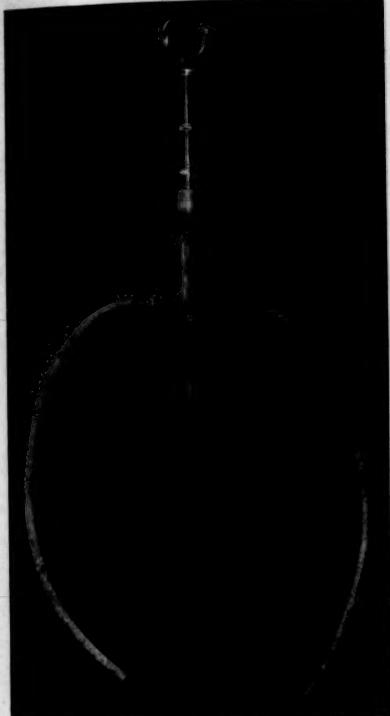
THE apparatus as shown in the cut is manipulated in the following manner:—

After the trocar, size 8 or 10 French, is introduced in the usual manner under the inferior turbinate and the inner wall of the antrum punctured, the stopcock nearer the rubber tubing, the free end of which is immersed in the solution, is opened and

the fluid is drawn into the syringe. This stopcock is closed and the middle one opened. The fluid is forced into the antrum through the trocar and then withdrawn together with the contents back into the glass syringe by suction. The middle stopcock is then closed and the last one opened, which allows the syringe to empty itself through the other rubber tube. The same process is repeated if necessary.

When more irrigations are required on subsequent visits, the trocar can be replaced by an ordinary eustachian catheter attached to the rest of this apparatus.

The patient has proven to be a valuable assistant by holding a small basin and a cup, containing the solution, in it—the end of one rubber tube being in the cup and the end of the other in the basin.



In this picture the middle stopcock only is open, and the syringe is ready for suction.

The advantages of the apparatus, and its method of application over the old ones, appear to the author to be the following:—

1. You get the contents of the antrum alone by suction with no admixture of pus or mucus from the nasal chambers, or naso-pharynx into the glass syringe ready for inspection, before it is emptied into the basin.
2. You do not have to flood the patient in order to have the fluid force its way through the natural opening. You simply pour out into the antrum approximately as much fluid as it can hold. This adds comfort to the patient. (For the sake of demonstration, in one of my early cases, I poured the fluid of the syringe out into the antrum and removed the apparatus. I then introduced the apparatus again and got my fluid back into the syringe by suction.)
3. You leave the antrum dry through suction every time, much the same as Nature does it constantly through the respiratory efforts. By the other methods the antrum is not left dry after irrigations. To make the opening low

down at the floor of the nose will not always help, for the antral floor is many a time lower than the floor of the nose. Besides, the wall of that region is thick and hard, and therefore more painful to break through.

4. You do not have to make a large opening, so the patient can stand the operation much better under local anesthesia.

5. The author believes that you can clear the antrum up in a much shorter time by this method.

6. In subacute cases, where thick mucus and pus were formed, suction appeared to be of more value in draining the antrum.

7. By suction a vacuum and passive hyperemia is formed in the antrum, and that ought to be a distinct advantage.



#### A NEW METHOD OF TREATING FLAT-FOOT.

BY PEEZ B. HOWARD, M.D., NEWTONVILLE, MASS.

MANY of us dislike to see ourselves in print, especially after so many able men have done so much work on this well-known subject, but after some time of experimenting I have a little to add, which perhaps may be of value.

Placing a foot in a shaped plate, steel, leather or felt (the last two become about the same as the first in time) never appeared to me as curative, although they do give relief, as they all act as a splint to the weakened members. While they may be made to fit the arch of the foot at rest they cannot adjust themselves to the changed contour when the arch of the foot is flexed or extended, and tend to hinder by their splint-like effect the free muscular action necessary for a cure.

After having trouble with my own right foot, I decided to try an experiment which seemed to me would give support to the arch in all positions and free play to the muscles, at the same time being perfectly flexible and self-adjusting.

Taking a cast of my foot I made a model and had a rubber factory make up several arch supports or shaped rubber bulbs filled with air. These I covered with leather and tried them out in my own shoe.

Much to my satisfaction, it felt good and I wore it all day, walking on frozen ground to make my calls as my auto was being repaired. At the end of the day it was no more noticeable than the glasses on my nose, and to my relief, I was not nearly as tired as I should have been without the pad and had no pain in my foot and leg.

Since the first experiment I have made several minor changes, but in general the arch above conforms to the arch of the foot below, it fits the shoe, and on the inner side it is reinforced to

prevent bulging. This is encased in leather, which is extended under the heel for an anchor, so to speak, and forward it tapers off just a little in front of the arch support.

The support is made and encased in such a way that the air is held absolutely under the arch of the foot, and as the contour of the arch of the foot changes, the arch support changes also, still exerting on the arch of the foot the same upward pressure. It allows free muscular action all of the time as the foot is flexed or extended in locomotion.

My instructions to my patients have been to get a proper flexible anatomical shoe with a low heel, and if they have a fallen or weakened arch to wear the inflated arch support. They must not expect a cure from this alone, but must exercise their feet by walking every day from three to four miles, being careful not to toe out, and trying to bring the big toe into play. If the patients will do this, I think they will be pleased with the results and the inflated arch may shortly be discarded.

For the acute flat-foot from falls, etc., rest is the best remedy, after which an inflated arch support might help, but my experience in such cases is slight.

My experience with trouble in the anterior arch has been only when there has been trouble, also with the longitudinal arch, and by correcting the latter with an air arch support the former has readily cleared up. A bulb could easily be made though to extend under the anterior arch. In my practice it has not been required.

In regard to the life of such a support, I would say, that we had, at first, some difficulty in making them to stand the weight, but now they do so fairly well, and it is a simple matter to inflate or deflate to any desired elevation. They may also be filled with fluid, in which case they will outlast two or three leather covers and not lose their elevation.

With a few variations in size, they can be made to fit the average feet, and as I have previously said, the inflation may be changed as desired, but as they are more or less self-adjusting, it is surprising how little trouble there is in fitting them.

In closing, I desire to call your attention to a few of the advantages of such a support and which I believe are not combined in any other:—

1. They are very light, even when fluid filled.
2. Flexible in any position.
3. Will not wear the shoes.
4. Do not mat down or lose life, as metal or padded arches do.
5. The pressure in the arch is a shifting pressure and changes with the arch of the foot.
6. They can be used from the first with comfort and relief.
7. The elevation is easily changed.
8. Above all, it allows the muscles and tendons to act freely in all movements of the foot, and thus regain their lost strength.

## Reports of Societies.

### COLLEGE OF PHYSICIANS OF PHILADELPHIA.

#### SECTION ON GENERAL MEDICINE.

MEETING OF MONDAY, APRIL 26, 1915, AT 8.15 P.M.

DR. JAMES E. TALLEY in the Chair.

REPORT OF A CASE OF SOLITARY ABSCESS OF THE LEFT LOBE OF THE LIVER OF UNCERTAIN ORIGIN CURED BY OPERATION.

BY DR. JOHN H. JOPSON AND DR. CLIFFORD B. FARR.

DR. FARR: The subject of the report was a man of thirty-six years of age, born in the Crimea, but nine years resident in this country. He was admitted to the hospital on account of pain in the epigastric region. His illness was attributed to an attack of grip eight weeks prior to admission. He apparently recovered from the acute attack, but four weeks before admission began to suffer with pain in the epigastrum, constant, but increased on movement or when standing. Ingestion of food or water afforded some relief. There was a moderate loss of weight and slight dyspnea. He had never had diarrhea while in Russia, but had had an attack six years ago after coming to this country. It was not definitely dysenteric in type. He had pneumonia three years ago; had also suffered from pleurisy with effusion. Two years ago he had "malaria." The patient had no bad habits. He took an occasional drink. General examination was largely negative. There was slight pallor; long flat chest with some impairment of resonance not definitely localized. The abdomen was scaphoid; the walls were relaxed. In the epigastrum a hard rounded mass continuous with the liver was felt. This moved with respiration and apparently bore no relation to the stomach so far as could be determined by inflating the latter viscera. The mass was dull, the size of a small orange and extended more to the left than to the right of the median line. On palpation it gave a sense of fluctuation as of a tense, fluid containing tumor. It was not very tender. Before operation the mass was thought to be either a tumor or an inflammatory condition. The temperature, pulse and respiration were normal throughout; the urine showed a trace of bile pigment and a few casts; blood count, practically normal. The stomach contents showed a marked hyperacidity; total acidity 128; blood pressure 160 (systolic). At operation a fluctuating tumor was discovered, occupying the left lobe of the liver. This area was walled off with gauze to encourage the formation of limiting adhesions, and three days later the abscess was aspirated and about eight ounces of brownish pus evacuated. Drainage was instituted. The cavity measured  $4 \times 1 \times 2\frac{1}{2}$  inches. Examination of the pus showed no hooklets, no amebae and no polymorphonuclear leucocytes. Cultures were also negative. The previous history of diarrhea suggested the possibility of an amebic abscess from which the causative organism had disappeared. Amebic dysentery prevails endemically in the Crimea, but the patient gave no history of any such disease. He was discharged cured on July 23, 1913, about six weeks after operation.

**Dr. JOPSON:** Dr. Farr has given the complete history of the case. I could not satisfy myself before operation of the connection of the abscess with the liver, probably because it sprang from the left lobe. It was more movable from side to side than from above downward. It seemed to increase in size during the patient's stay in the hospital. The process appeared to be progressive and the tissue rapidly breaking down. Examination of the brownish turbid fluid showed few polymorphonuclear leukocytes, but fragmentary tissue characteristic of liver abscess was present. The operative diagnosis was made of solitary abscess of the left lobe of the liver of undefined origin. It was thought an infection may have been present in which the organism had died out. This was not considered very likely, however, because one of the usual causes of the common infections of the liver was present. By exclusion we felt that the condition was an amebic abscess of the liver. The man had had diarrhea and had come from a part of Russia where the amebae are found. It is not improbable that there had been an old amebic infection of the bowel with secondary infection of the liver. The two-stage operation, recommended when the liver is not adherent, was done. It is simple and free from danger. Some 60% of solitary abscesses of the liver are sterile and in about 20% no amebic organism or bacterium is found. My experience with abscess of the liver is very limited. In one case the condition was associated with subphrenic abscess, and in that case the liver broke down secondary to the abscess and the patient died. This was the only case of solitary abscess of this type I have, myself, ever operated upon. I have seen a few others. The first one I saw operated upon was when I was a student. The technic in those days was not very safe; a large vein was wounded and the man bled to death.

**A CASE OF OLD ECHINOCOCCUS OF THE LIVER SIMULATING GALL-STONES, WITH X-RAY FINDINGS AND OPERATION.**

By DR. JAMES E. TALLEY AND DR. JOHN H. JOPSON.

**Dr. TALLEY:** I have but a few things to say concerning the case. The patient was a woman between 55 and 60 years of age whom I saw first in 1903. She had had nervous prostration and still had attacks of acute nervousness, sometimes becoming unconscious, but without any of the ordinary signs of epilepsy. We had come to the conclusion that these spells were hysterical. I saw her off and on for minor things at intervals for the next two years. She had a good deal of digestive disturbance. I am free to say that if the technic of x-ray examination of gall-stones had been perfected in 1903 as now, she probably would have been skinned long ago, for the patient was of the type to suggest the possibility of cholelithiasis. Last spring she saw me again, when she was again suffering from digestive disturbance. She vomited after meals, and was progressively losing weight. Both an Ewald and a Riegel meal showed a low total acidity and no free hydrochloric. She evidently was a case of achylia gastrica, as no new growth was found then or since. She was to return in the autumn, but did not. Meantime she had had one of her spells. Dr. Mulford had advised having a skiagraph made to see whether she had gall-stones and apparently she had. This photographic plate shows a definite picture like gall-stones. She was

admitted to the hospital for operation. Dr. Jopson will describe the findings. Since leaving the hospital she has been in her usual health.

**Dr. JOPSON:** The x-ray examination seemed to show so positively the presence of gall-stones that we decided without hesitation upon operation. Her symptoms among other things suggested cholecystitis,—which she had; but she had also another condition. Operation was done on Nov. 9, 1914. An upper abdominal incision showed marked distention of the gall-bladder surrounded by adhesions, but no stones. The gall-bladder was palpated, but no calculi could be found. The routine examination of the stomach and kidneys was made but was negative. On the right lobe of the liver, on the dorsal aspect, there was a yellow area, underlying which was a soft tumor. (Its relative position is shown on the board.) This was apparently the cause of the shadow on the plate. The aspirating needle revealed nothing. Incision revealed a cyst the size of a hickory nut, filled with yellow caseous material, which I removed with a curette. I closed the incision with a couple of sutures and the patient made a normal convalescence. Cholecystostomy and appendectomy were performed. A diagnosis was made of echinococcus cyst. This was confirmed by the finding of the hooklets by Dr. Pfeiffer. I made this diagnosis because I had seen a similar case under Dr. Musser's care posted in the Presbyterian Hospital, in which Dr. Cattell had found the hooklets characteristic of echinococcus cyst. The condition is exceedingly rare in the United States. In this case the apparently positive finding of gallstones by the x-ray was misleading. The liver is the common seat of echinococcus cyst, 60% being found in this organ.

**A REPORT OF TWO CASES OF NEW GROWTH OF THE THYMUS GLAND.**

**Dr. E. J. G. BEARDSLEY:** The first case was that of a girl of seven years, previously considered particularly healthy. In October, 1913, there was noted swelling of the face, neck and head, the tissues appearing edematous, but without pitting on pressure. Slight enlargement of the thyroid and abnormal pulsation of the vessels; slight exophthalmos, and the lids lagged somewhat on downward motion. The heart was displaced downward and to the left and its action was rapid and weak. Physical signs revealed a large mass in the anterior mediastinum. The child's only complaint was a distressing cough. Edema of the chest wall soon became evident and there was general anasarca. A radiographic plate revealed an extensive shadow of a new growth occupying the site of the thymus gland and encroaching upon either lung. Roentgen rays administered in a small town with limited facilities, gave practically no improvement. After a few weeks of treatment the child developed symptoms of nephritis, all the other symptoms became aggravated and the child died in a uremic convulsion, eight and a half months after observation of the first symptoms. Autopsy was denied.

The second patient was a boy of five years of age, previously healthy. In July, 1914, slight puffiness of the eyelids and face was noted. There was slight enlargement of the cervical glands, but no marked evidence of intrathoracic pressure, and the chest was not examined by the family physician. The mother states that the disease began suddenly on Aug. 2, 1914, with marked swelling of the tissues of

the neck. The ears and lips were cyanosed at this time; breathing hurried and labored. There was neither headache, other pain, nausea nor vomiting. Upon swallowing solid food there was a sensation of strangling. Careful physical examination revealed an extensive mass in the anterior mediastinum, and this was confirmed by the radiograph. Under Roentgen ray treatment the improvement of symptoms and the disappearance of physical signs were almost magical. After the first two treatments the child's condition was much improved, and the radiograph showed the disappearance of the greater part of the shadow noted on the first plate. The continued improvement allowed the child to be about the house, but signs of sarcomatosis developed, and the child died about four months after the symptoms were first noted. The second case illustrates the marked relief possible to obtain; while the failure of the Roentgen ray treatment in the first case can be ascribed to the weakness of the x-ray treatment rather than to the treatment itself.

#### DISCUSSION.

DR. JOSEPH SAILER: In accord with Dr. Beardsey's statement, these tumors are perhaps not so uncommon as supposed. I have seen only two such cases. They were as carefully studied as could be, but in neither case could we obtain an autopsy, and, therefore, the report must of necessity be incomplete. The first case was a woman aged 32 years, sent by Dr. Brown of Quakertown. She had borne five children and had always been a hard-working woman. She was admitted to my wards at the Presbyterian Hospital, complaining particularly of dyspnea. Dr. Brown had recognized a large tumor in the superior mediastinum. It was shown by the x-ray as a large, somewhat irregular mass. It was supposed to be an enlarged thymus, and at my request Dr. Jopson removed part of the gland. We were unable to decide from the pathological report whether or not the growth was malignant. Dr. Jopson decided that operation would be futile. Dr. Newcomer kindly consented to use radium, which was done for a considerable time. I could not determine that there was any physical change in the tumor. Subjectively the improvement was very remarkable. The woman returned to her home against my advice, and in a few weeks the dyspnea returned and she was worse than when she had come to Philadelphia. I advised that she be sent down and suggested the advisability of attempting a section of the sternum for the purpose of relieving pressure upon the trachea, but I have heard nothing further. The second case was a man of twenty-three, admitted to the ward suffering from general hemorrhage. There was bleeding from the gums, nose, gastro-intestinal tract and the urinary tract. A large mass behind the sternum could be palpated, but produced very little discomfort. He had practically no dyspnea and no dysphagia, no sign of compression of the veins or nerves. The various forms of treatment for acute leukemia were given with the usual result; the patient improved and then grew worse and died, not so much the result of pressure upon the trachea as of the gradual progress of the disease and extreme anemia. In spite of our pleading with the family, autopsy was refused. Whether in the future surgery will be devised, making possible the removal of a tumor beneath the superior portion of the mediastinum we do not know. Possibly with the improvement in pul-

monary surgery an operation can be done in cases such as the first with prolongation of the life of the patient. Examination of adjacent lymphatic glands revealed no involvement, and the symptoms were almost exclusively those of pressure.

DR. ROBERT N. WILLSON: It may be of interest to note that in a number of articles that have filtered through in recent German literature reference is made to the coincidence of thymus and thyroid enlargement. An abstract appearing in last week's *Journal of the American Medical Association* brought out two points of value to the internist: (1) The very frequent association of gastro-intestinal derangements with these lesions, indicating a possible origin in gastro-intestinal toxemia (an improper term, but describing the thought); and (2) the control of a considerable number of these cases by large doses of atropin, in the entire absence of surgery. The drug was administered on the basis that it would exert an influence upon the vagotomy which is present in so many of these cases.

#### FACTORS CONTRIBUTING TO THE DIMINISHED VOCAL RESONANCE OF PLEURAL EFFUSION.

DR. C. M. MONTGOMERY: The mechanism of diminished vocal resonance in pleural effusion, though attributable to simple factors, has apparently never been satisfactorily explained. The factors operative in diminishing the vocal resonance are reflection and diffusion, the former occurring at the junction of the air-bearing collapsed lung with the fluid, the latter between the surface of the lung in contact with the fluid and the external chest surface. The sounds are not diminished as a result of poor conduction, because both fluid and tissue conduct sounds well in the absence of diffusion. There is little sound loss at the fluid-chest-wall junction because the fluid and tissue do not differ greatly in density, or, presumably, in elasticity. The louder vocal resonance over the normal side as contrasted with the side containing fluid, is due to the smaller amount of diffusion on the normal side.

#### STUDIES IN HYPERSECRETION.

DR. MARTIN E. REHFUSS: In a study of over 100 normal students the average quantity of the residuum of the fasting stomach was 52.14 c.c., a figure considerably in advance of that usually recognized and due to improvement in technic. In studies on normal individuals we found that the response to an Ewald was one of three types, depending on the character, rapidity, and reaction to the stimulus, namely: hypo-, iso-, and hyper-secretory. In 38% of all responses in normal individuals, figures of over 70 total acidity were obtained in some part of the secretory curve. In the hyper-secretory type, there is found normally a definite tendency toward a continued secretion or hyper-secretion, which varies all the way from slight grades to a pronounced secretion for several hours or more. It must, therefore, be recognized that in a certain proportion of individuals to all intents normal, there is a definite hypersecretion merging in pathological cases to a "pronounced hypersecretion."

A point apparently neglected is the "velocity" of the formation of the secretion. There is a pronounced outpouring of the secretion even when the stomach is completely emptied. Results are detailed of the introduction of 0.5% HCl in sufficient quantities (100 c.c.) to stimulate artificially hyper-

secretion in normal individuals. The acidity of the gastric contents is always definitely and persistently lowered and may be followed by secondary stimulation. Whether this is due to the outpouring of a thinning fluid or "Verdünnungssäft" of the Germans or to dilution of fluid of relatively low acidity cannot be stated. It is likewise pointed out that neither atropine, silver, high or low protein diets, salt-free diets, act specifically in every case. But in certain selected cases one or the other occasionally acts in a remarkable manner suggesting possibly several different mechanisms for the production of the condition.

Hypersecretion occurred even of very low acidity in one instance of total acidity 7 and no free acid, of which some 200 c.c. were collected after the meal had completely left the stomach. The dissociation of hyperacidity and hypersecretion is pointed out. It is to be noted that in a large proportion of normal individuals there is a definite hypersecretory tendency and often a "continued" secretion which through the agency of some pathological factor can be markedly aggravated or converted into the most pronounced type of this condition.

DR. J. H. AUSTIN AND DR. O. H. P. PEPPER presented a paper on

#### BLOOD AND URINARY NITROGEN CURVES AFTER FEEDING.

DR. N. GINSBURG read a paper on

SOME OF THE FACTORS UNDERLYING THE DEVELOPMENT OF GRAVES' DISEASE WITH REMARKS ON VASCULAR OCCLUSIONS OF THE THYROID VESSELS.

#### Book Reviews.

*The Practical Medicine Series.* Vol. II. General Surgery. Edited by JOHN B. MURPHY, A.M., M.D., LLD., F.R.C.S., F.A.C.S. Chicago: The Year Book Publishers. 1915.

This second volume in the Practical Medicine Series for 1915, represents the year's progress for 1914 in general surgery, as summarized from the literature under the editorship of Dr. Murphy. Particular attention is devoted to anesthesia and operative technic. Under the heading of transfusion, the methods of McGrath, Kahn, Davin and Curtis, and Corbett are described in detail. The book, which is admirably illustrated with a colored frontispiece, 49 full page plates and 180 text figures, forms a valuable compendium of recent surgical advance.

*Outlines of Internal Medicine.* By CLIFFORD BAILEY FARR, A.M., M.D. Philadelphia and New York: Lea and Febiger, 1915.

This volume is intended as a basis for a sys-

matic training school course for nurses in internal medicine, and in addition as a work of reference for graduate nurses. In the discussion of diseases, symptomatology, prophylaxis and treatment are emphasized rather than diagnosis, —in short the diseases are described from the natural history point of view. The book is divided into ten parts, dealing respectively with the diseases of the nervous system, of the blood and glands, of the circulatory system, of the respiratory tract, of the digestive tract and peritoneum, of metabolism, of the genito-urinary tract, of the muscles, bones and joints, with diseases due to heat and poisons, and with the infectious and parasitic diseases. The work is well illustrated with seventy-one engravings and five plates, one of the latter being colored. It should prove a serviceable text-book for the instruction of nurses and for their subsequent use while in practice.

*Principles of Bacteriology.* By A. C. ABBOTT, M.D., Professor of Hygiene and Bacteriology, and Director of the Laboratory of Hygiene, University of Pennsylvania.

This edition is an improvement upon previous editions, although the extreme elementary character of the book is preserved. The added matter is largely upon immunity. In other respects the book cannot be said to be up to date. For instance, nothing is said about the complement fixation test for glanders, the cultivation of spirochetes and the cultivation of the virus of poliomyelitis. The only mention of the Spirocheta pallida is in a brief paragraph on the staining by Stern's method, one of the least used and least efficient methods. There are numerous other deficiencies in the book. It is of high school rather than of medical school calibre.

*A Reference Handbook of Medical Sciences by Various Writers.* Third edition, completely revised and rewritten. Edited by THOMAS LATHROP STEDMAN, A.M., M.D., Vol. V. New York: William Wood and Company. 1915.

This fifth volume continues the third edition of this standard medical encyclopedia, embracing the entire range of scientific and practical medicine and allied sciences. The previous edition was edited by Dr. Albert H. Buck. The present edition, by his able successor, continues the merits of the original. It is primarily the work of a large number of contributors, each an expert in a special field. The book is copiously illustrated by numerous chromo-lithographs and by 733 half-tone and wood engravings. This volume extends alphabetically from head wounds to life insurance, and carries the total number of illustrations in this edition thus far to 3732.

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## IMMIGRATION AND RACIAL PREDISPOSITION TO DISEASE.

THE effect of environment and climate on racial character, predispositions and immunities has always been recognized, though the reasons therefor have not been clear. With the destruction of the better elements in a race, susceptibility will be increased in the remainder and immunities decreased, commensurate with the emphasis of recessive or undesirable characteristics. In certain of the races and peoples these predispositions and immunities are well marked: The Jews, for instance, have a relative immunity to tuberculosis gained, probably, from long contact with conditions predisposing to it, such as the congestion of the pale, wherein there has been a survival of the fittest, those with some resistant quality—perhaps some antibody. To offset this advantage they are muscularly underdeveloped; they have ptosis and flatfoot, due to a giving way of the musculature at

points of pressure. They are prone to congenital physical defects, and have highly sensitive nervous systems. They are the chief sufferers from diabetes. Wilson (*Medical Record*, Oct. 2, 1912) showed that there has been a constant and commensurate rise in the diabetes incidence in New York City, keeping pace with the increase of the Jewish population therein—a striking example of the effect of alien accession on local morbidity. The diabetes in them may be the results of constant intermarriage among themselves—a racial consanguinity—which has a tendency, even in animals, to produce a general constitutional instability. This same race, on the other hand, possesses an indisposition to alcoholic intemperance. On the other hand, likewise, a mixture of this race with the physically dominant races here produces a fine type and tends to eliminate their recessive characteristics (Friedman, *J. A. M. A.*, March 9, 1912.)

The Greeks are subject to various forms of infantilism, especially arrested sexual development. They are particularly prone to spinal meningitis. The Armenians and Syrians are particularly prone to trachoma, and very susceptible to typhus fever, the sporadic types. The Italians age prematurely and have a marked tendency to arterio-sclerosis. Malaria, hookworm and pellagra are common among them. When transplanted from their own soil they are subject to tuberculosis. Rickets and osteomalacia are relatively common among them. The Turks are very susceptible to mumps. The Spanish, Portuguese and Basque sheep-herding people are prone to contract anthrax.

The Swiss tendency to goitre and strumipriva is well known. It is a water-borne condition, not due to animal contamination, but probably to the presence of certain toxins, which, however, are destroyed and the water made fit by boiling to 80 C. In the Germanic and Scandinavian races there is a marked tendency to albinism. The proneness of the Germans to myopia is great, indeed, even to 60% of their population. Leprosy is, for some reason, present in the Scandinavian countries, but is well under control. The Scandinavian races do not survive in warmer climates. Their settlements in the Southern states are now all gone, while those in the Northern states are thriving. The intemperance of the Irish seems due to food poverty and general poverty. For the same reason they have a proneness to tuberculosis, rickety bone deformities and

teeth caries. Yet these recessive qualities soon disappear under favorable environment.

The negro is very prone to tuberculosis, to rickets and hookworm. He enjoys a marked immunity to trachoma but seems to be developing a susceptibility to leprosy. The yellow race is susceptible to trachoma, leprosy and beri-beri. The red race is markedly susceptible to trachoma and tuberculosis, and, indeed, it is from the latter that it is dying out. In general, all aboriginal races are susceptible to the eruptive diseases, especially measles, by which whole communities may be wiped out.

To bear in mind these various susceptibilities and immunities will be of aid to medical officers engaged in the protection of the public health, yet these conditions have a larger significance than merely the detection of individual cases. Active cases are few, but every immigrant carries the potentiality which may nevertheless leave its mark with us who must needs act as a melting pot. It is important to consider the effect of a large migration with its native susceptibilities on the peoples here. Will the dominant qualities of the habitant race overcome the recessive qualities of the migrating races, not merely socially and economically, but racially; that is, physically and mentally? Will the large admixture of these races reduce the native standard and introduce new susceptibilities? It is a real question of preparedness. Are the races here constitutionally prepared to overcome and assimilate a great number of recessives?



#### SURGICAL DRAINAGE WITH STEEL SPRINGS

So much misery has already been the fruit of the European war and so much more will undoubtedly come to pass before peace is declared, that it would be surprising indeed if there were not a moiety of good discoverable here and there. When the smoke clouds have finally rolled away and the nations settle down to count up the cost, it seems probable that in spite of the heavy death roll of the military surgeons, the medical profession, and especially the surgical branch of it, will have benefited most by the wholesale carnage; for in the arena of war are opportunities which have never before existed in the history of the world for observing surgical injuries and testing out methods of treatment.

Cases which in civil practice are considered

rare, the Red Cross surgeon sees every day and he is able to reckon up his operations by hundreds instead of one or two now and then. Not always does he find himself adequately provided with the tools of his profession either, and often amputations must be done, abscesses opened and wounds dressed in a hurry and under fire, so to speak. Small wonder that the medical mind, stimulated by the constantly recurring emergencies of war and impatient with methods which formerly seemed good enough, is constantly devising new methods of treatment which, if they are successful on the battlefield and in the field hospital, will be the commonplaces of the surgical education of tomorrow.

One of the most recent inventions, if we may term it such, is a new method for draining wounds, originated by a German surgeon, Dr. Tiegel. He had become dissatisfied with present methods of draining, especially with the familiar disadvantages of gauze drains; that is, that after being in the wound a short time they dam up discharges and thus may form pockets of pus, and that when these drains have been saturated with some antiseptic solution they keep this germicide too long in contact with the tissues, tending to devitalize them. Dr. Tiegel's method is the use of a small, rather weak steel spring placed between the edges of the wound so as to hold them slightly apart. At each end of the spring is a small, oblong plate of metal which prevents laceration of the tissues. The wound is thus held open and if possible the patient is placed in such a position that gravity assists in drainage. After twenty-four hours the spring is removed. The originator of this method has found that there is no pain while the spring is in place although its removal may be attended by some discomfort. This sort of drain does not interfere with the natural tendency of the cavity to collapse as does a gauze drain, and so obviates what sometimes happens with the latter kind of drain, i.e. the establishment of a cavity with definite walls which has to be filled up with granulation tissue.

#### VACCINATION OF THE WOUNDED.

HOWEVER much we deplore the suffering attendant upon war, we of the medical profession must keep ever before us the prospect of being called to help our own country should it be forced into conflict. It behoves us, therefore, to benefit by the experiences of our European col-

leagues who are every day learning fresh facts about the treatment of wounds. This war has presented problems which military surgeons have never before had to solve or at least not in such quantity, the poisoning of troops by noxious gases, hysteria infecting whole groups of soldiers, injuries due to the wind of explosives.

As might have been expected, serum therapy, that youngest offspring of clinical medicine, is having a wholesale chance to demonstrate its efficiency. Whole armies are vaccinated against typhoid and smallpox with a consequent complete protection against these scourges. We may watch with the most interest, however, the employment of vaccines in wounds, for their efficacy here is yet a mooted question, and certainly a war of such dimensions as the present one will give us a sufficient number of cases from which to generalize.

An English physician, Dr. Tidy, has given us<sup>1</sup> a preliminary report on the use of vaccines in wounds. He has not found that any miraculous results follow their use, but is inclined to believe that they have on the whole been of some use. It has been his custom to wait several weeks before using vaccines in order to give natural healing processes a chance. Then he begins with small doses of vaccine and gradually increases these. Autogenous vaccines are used if procurable, otherwise mixed vaccines approximating as closely as possible the organisms responsible for the infection in question.

Dr. Tidy states that the temperature is the most reliable guide in the use of vaccines. There should be no elevation of temperature of over .5° following an injection. The best result is a steady fall in the temperature curve. Sometimes the patient complains of various constitutional symptoms such as headache, nausea and malaise and there may be a temporary aggravation of the discharge, but according to Dr. Tidy, these symptoms may be ignored if the temperature continues to drop steadily. He does not approve of giving vaccines at all in mild cases and says that they should never be given within thirty-six hours of an operation on an infected case.

<sup>1</sup> The Treatment of the Wounded by Vaccines. By H. L. Tidy, M.D., *Lancet*, August 14, 1915.

are particularly well illustrated by Dr. Mixter's article and by the communications which we are able to present in other columns of this week's issue of the JOURNAL, from our special correspondents in three different fields of action. Dr. Mixter's experiences in France may be regarded as representative of the best surgical opportunity to be obtained by American surgeons serving in that country during the present war; and his account of them, admirably illustrated by original photographs, presents most vividly the conditions prevailing at a hospital of the type of the Chateau Annel and at Juilly. The first of our correspondents presents, in his familiar and attractive style, the medical and general situation near the Italian frontier, among the valleys of Savoy. The second, who has been serving with the American Red Cross mission at Budapest, presents other aspects of war conditions in Italy and Austria than those with which readers of the JOURNAL have already been informed by previous correspondents. The third, an editor of the JOURNAL, discusses aspects of his experience on his journey through France towards the hospital where he is at present in service. In next week's issue of the JOURNAL we shall be able to publish a further communication from Dr. Smith describing his work at this hospital. The JOURNAL values most highly its opportunity to present to the medical profession in America such communications from reliable members of that profession now sharing in the momentous experiences of the European war, and desires herewith, in its own behalf and in that of its readers, to extend grateful acknowledgment to its past and present contributors and correspondents and to those who, in the future, will continue to supply these first hand accounts of events whose ultimate importance is as great as their present interest.

#### MEDICAL NOTES.

**NEW YORK WEEKLY MORTALITY REPORT.**—According to figures supplied by the Department of Health there were during the week just ended twenty-four more deaths than during the corresponding week of last year. The exact number of persons that died during the past week was 1361, with a rate of 1223, as compared with 1286 and the rate of 12.01 for the week ending August 29, 1914.

The important feature in the report for the past week is the increased mortality from ty-

#### MEDICAL WAR ARTICLES AND CORRESPONDENCE.

THE importance and interest of the European War, especially in its relation to medical affairs,

phoid fever. Of the 21 deaths from this disease last week, 12 occurred in the Borough of Brooklyn and 41 new cases reported in that Borough as against 29 in the remaining four boroughs. The heaviest mortality occurred in the 8th Ward of Brooklyn.

Of the contagious diseases whooping cough was the only one that showed an increase. The deaths reported from diarrhoeal diseases under 5, were two more than during the corresponding week of last year. Considering the increase in population this amounts to a material reduction in the rate.

The death rate for the first thirty-five weeks of 1915 is 13.64 as compared with 14.10 for the corresponding period of 1914.

**ROCKY MOUNTAIN SPOTTED FEVER.**—Since January 1st, 1915 there have been reported by the United States Public Health Service a total of 562 cases of Rocky Mountain spotted fever with 36 deaths. Idaho had the largest number of cases, 360 in all. The occurrence of the disease in other states is as follows: Wyoming, 59 cases; Oregon, 46 cases; Montana, 34 cases; Utah, 31 cases; Colorado, 14 cases; Nevada 8 cases; Washington, 6 cases; California and South Dakota each two cases. Montana with 34 cases reported that 22 occurred in territory previously uninjected, which represents a spread of the disease in the southeastern part of the state. Two cases occurred in South Dakota, the first ever recorded from that state. They probably represent the same extension of the disease in a northeasterly direction from Wyoming from the southeastern part of Montana. Three of the cases reported from Oregon represent an extension to the northwest of that state.

**PROGRESS OF THE IMPERIAL CANCER RESEARCH FUND.**—The research work of the Imperial Cancer Research Fund has, as naturally might be expected, been considerably affected by war conditions. In view of the demand by the War Office for highly trained investigators, Dr. Russell, Dr. Compton, Dr. Bullock and Dr. Singer have entered the service. Fortunately, on the outbreak of the war, several Japanese doctors who had been conducting researches in Germany applied for permission to work in the laboratories. Two of these doctors, Dr. Tsurumi and Dr. Takahashi, received appointments and have been carrying on valuable researches and assisting the Director in routine work. Dr. Kenneth Taylor, of Minnesota, joined the laboratories as a voluntary worker, but was soon called to join the American Ambulance at Paris. In February, Dr. F. C. Wood, Director of the George Crocker Special Research Fund, New York, offered to assist the Laboratories in the event of the staff being called for service, by taking over for the time being the material, and if necessary, the laboratory servants with full salaries. This offer was cordially acknowledged

with the information that it was hoped the staff would be able to keep the routine work of the Laboratories going without interruption.

**FUMIGATION AS A METHOD OF DISINFECTION.**—The American Public Health Association met in Rochester, N.Y., for its forty-third annual meeting on September 6. The fifteenth annual conference of Sanitary Officers of New York State and the annual meeting of the New York Sanitary Officers Association were held simultaneously. One of the subjects under discussion was the question of fumigation of houses after contagious diseases as a means of disinfection. The JOURNAL noted in a recent issue the decision of the Boston Board of Health to discontinue the practice of fumigation as useless, inefficient as a method of killing germs and merely resulting in a waste of public funds. The practice has also been discontinued in Providence, R. I., and the attitude of the American Public Health Association towards its general condemnation will, no doubt, result in its abandonment by most cities and towns. If, instead of relying on fumigation, householders will resort to fresh air and sunlight and soap and water cleaning to destroy lurking disease germs and will guard more carefully against infection by personal contact, probably fewer cases of spreading infection will result than would be the case if dependence were placed on fumigation as ordinarily performed.

**PREVALENCE OF MALARIA, MENINGITIS, POLIOMYELITIS, SMALLPOX AND TYPHOID.**—In the weekly report of the United States Public Health Service for August 27, 1915, it is noted that during the month of July, 1915, there were in Massachusetts twenty-seven cases of malaria, twelve of cerebro-spinal meningitis, eight of poliomyelitis, two of smallpox and 170 of typhoid fever. During the same period there were seventy-three cases of malaria in New Jersey; and in Ohio eight cases of meningitis, twenty-four of poliomyelitis, 129 of smallpox and 292 of typhoid. There were 217 cases of typhoid in South Carolina, 128 in New Jersey, ninety-five in Michigan, sixty-nine in Washington, forty-three in Minnesota and thirty-six in Louisiana.

**INCREASE IN COST OF ANTIPIRINE AND OTHER DRUGS.**—In previous issues of the JOURNAL we have noted from time to time the progressive advance in the cost of various drugs on account of the interference with their supply by the war. One of the most rapid increases has taken place in the price of antipyrine, which on June 3 sold at \$6.50 a pound. On July 21 this price was raised to \$13.00 a pound and on August 20 to \$20.00.

A part of the increase in the cost of drugs since the outbreak of the European war has been genuinely due to interference with the sup-

ply; a part also has been due to speculation, which reached its climax in the latter part of August, 1914. The quotations of that date were generally higher than at present, with the exception of certain important products. On May 1, 1915, however, there began a second rise in prices which has continued almost steadily to the present date. On August 30, 1915, the prices quoted per pound for certain of the important drugs were as follows: opium, \$7.50; corrosive sublimate, \$1.45; thymol, \$11.00; balsam of Peru, \$3.75; sandal wood oil, \$6.00; belladonna root, \$1.75, and ipecac, \$2.50. The corresponding prices on July 1, 1914, were: opium, \$6.85; corrosive sublimate, \$.55; thymol, \$2.15; balsam of Peru, \$1.60; sandal wood oil, \$5.10; belladonna, \$.11, and ipecac, \$1.50. On July 1, 1914, cod liver oil sold for \$19.00 a barrel. It now costs \$65.00 a barrel.

#### EUROPEAN WAR NOTES.

**HEALTH OF GERMAN SOLDIERS.**—Report from Berlin by way of London on September 2 states that the health of German troops on the various battlefronts is excellent. Dr. Otto von Schiering, surgeon general of the German army, in a recent report stated that cases of typhus fever have occurred but rarely, though prior to the war the disease was endemic in some of the occupied districts.

The typhus was successfully combated by providing the soldiers with sterilized water, more than 300 portable apparatuses for boiling, cooling and filtering drinking water being employed. Each of these was capable of preparing 200 gallons hourly. The military physicians systematically isolated all cases, not only among the German troops, but also among the civil population of the occupied districts. Anti-typhus vaccination of the soldiers was also generally performed since the outbreak of the war, which was impossible during the mobilization period.

Along the Russian front Asiatic cholera has also constituted an important menace. Many cases were found in the area recently occupied beyond the River Vistula, but nowhere has it become epidemic. Between July 18 and 31 there were 215 cases of this disease among Russian prisoners in Germany and sixteen cases among German soldiers. This disease, also has been successfully controlled by inoculation and by the use of sterilized drinking water. In Austria, conditions are not so favorable. Report from Rome by way of Paris on September 7 states that during the last three weeks of July there were in Austria 1885 cases of typhus fever and 7427 cases of Asiatic cholera with 3395 deaths.

**CASUALTIES AMONG PHYSICIANS IN SERBIA.**—In a recent issue of the *Journal of the American Medical Association*, are presented statistics showing that of 387 native Serbian physicians

alive at the beginning of the war, 93 have died, 82 of them from typhus fever. There have been 35 deaths among foreign physicians in Serbia during the war of whom four were American, three British, and two Belgian.

**WAR RELIEF FUNDS.**—On September 10 the totals of the principal New England Relief Funds for the European War reached the following amounts:

Belgian Fund .....	\$271,461.37
French Fund .....	14,093
Italian Fund .....	5,876.20

**A CANADIAN SURGEON IN FRANCE.**—The following extracts from the letter of a Canadian surgeon of the Royal Scots to his family, recently published in the Quebec *Chronicle*, illustrate some aspects of medical service at the front in France:

"I was glad to get the letters from home, but was sorry to note you were feeling so anxious. You can rest assured that living here is much safer and much less exciting than the concentration of our moments into one letter would indicate. Don't worry about me. I select a nice secluded spot, and get it well fortified."

"We had a little bit of excitement last night when we exploded a mine and occupied the crater. We lay in our redoubt and listened to the merry shriek of the bullets going well over our heads. None of our men were wounded, but I think we got a number of Germans. For five weeks we hadn't one man killed in our battalion."

"We have had hot baths in good (enamelled) bath-tubs every time we have been out of the trenches, hot water turned on. We have better meals in billets than even in the hospital. I have played on three cricket matches and took part in sports Dominion Day."

"I used most of the money sent me to provide the men in hospital with newspapers and for prizes at the sports, as I thought this would be the most beneficial use to put it to at the time. These kinds of things are very welcome, as they are a change and any way, nothing is too good that will give pleasure and relaxation to our men who are doing the fighting so effectively."

"My dressing station is in a combination of a well-built log cabin and a dugout. Quite a large hill protects us from the Germans. At first the sound of the guns, both ours and theirs, is rather trying, but it took me only a couple of nights to get accustomed to them, and now I can sleep through almost anything."

"I see the church has put in a protest against sending cigarettes to the soldiers. I admire their spirit, but not their judgment. With very few exceptions, the clergymen in our division smoke out here, and do not think it is because they have fallen from their ideals, but because they realize the value of what proves to be, for them, a soothing, refreshing pleasure, whose harm under these circumstances of outdoor life and exercise is

more than neutralized by the general benefit in the way of restful contentment.

"We had a beautiful time in our billets. I was billeted in the Curé's house. He was a general soul, and did not seem to be at all disturbed by the fact that his house has been occupied for the past eight months by soldiers, and that the Germans were within a very short distance of his beloved church. He had six dogs, a fine garden, and a good library, and was happy in these.

"My stretcher bearers are splendid, and are the heroes *par excellence* of the game, I believe."

"The heel protectors and socks have been most useful. The men come in with sore heels, which do not get a chance to get quite well in billets, but with the protection of your heel leathers they get a better chance, and I could use more of them."

"The men are in very fair condition, and although most of the glamour and glory of war has been shelled out of their minds, they are determined to see this thing through."

"It is fine working with them, and being able to feel that you can do something for the men who are really doing the hard and dangerous end of the business."

**STATUS OF AMERICAN RED CROSS RELIEF.**—The American Red Cross has recently received various inquiries indicating a lack of public understanding of the terms under which its relief work is performed in the time of war. The following statement has been issued in the public press defining these terms and the status of the Red Cross in relation to the government of belligerent countries:

"There is an international treaty, a very explicit law, a presidential proclamation, and duly promulgated orders of the War and Navy Departments relating to the furnishing of volunteer aid to the sick and wounded of armies in time of war. It apparently is not fully realized that war relief work must be accomplished, under definite regulations; that a precise plan of action was long ago adopted, and that a nation-wide, officially recognized and chartered relief organization, with departments designed to meet every phase of war relief work, exists.

"The conduct of war is regulated by certain well-established and recognized rules that are usually designated as "the laws of war" which comprise the rules, both written and unwritten, for carrying on war, both on land and at sea. Should there ever come a time when the United States would be involved in war it would be imperative to enforce with the utmost stringency the law, and the executive and departmental orders governing the use of the Red Cross emblem and the functions of the Government's chartered supervision and systematized volunteer relief association.

"All volunteer aid must come under the direction of the American Red Cross in such a contingency to carry out the obligation of the United

States under the Treaty of Geneva, to fulfil all requirements imposed by Congress, to secure efficiency under centralized authority and trained organization in close affiliation with the Army and Navy Medical service, and finally to safeguard the American public against fraud and abuse.

"It should be understood that the surgeons general of the United States Army and Navy are appointed by the President of the United States to represent these departments in relief work. They are members of the American Red Cross executive committee, and chairman and vice chairman, respectively, of the War Relief Board.

"All accounts of the American Red Cross are required by law to be audited by the War Department and an annual report, also required by law, detailing the activities of the organization, is made to Congress by the chairman of the central committee. It may be seen from this that the American Red Cross machinery would be set in motion at once and that its activities would be definitely coördinated with the legislative and executive work of the Government in time of war. Merely as an example of its preparedness in one branch of its organization, there are 6000 enrolled American Red Cross graduate trained nurses who have been accepted by the War Department as the Army Nursing Reserve Corps.

"The War Department and the Navy Department long ago formulated regulations governing completely the duties and functions of the American National Red Cross with reference to rendering aid to the land and naval forces in time of actual or threatened war. The sign of the Red Cross is protected by law and the fraudulent use thereof is punishable by fine or imprisonment or both.

"President Taft in 1911, by proclamation to the Army, stated briefly the relations that must exist between the military departments of the Government and volunteer relief in the event of war. General Orders, No. 170, War Department, 1911, publishes the proclamation, stating in effect that the American National Red Cross is the only volunteer society authorized by this Government to render aid to its land and naval forces in time of war; and that any other society desiring to render similar assistance can do so only through the American National Red Cross; that to comply with the requirements of Article 10 of the International Red Cross Convention of 1906 (revision of the Treaty of Geneva), that part of the American National Red Cross rendering aid to the land and naval forces will continue a part of the sanitary service thereof."

#### BOSTON AND NEW ENGLAND.

**TYPHOID AT GRAFTON STATE HOSPITAL.**—In the issue of the JOURNAL for August 26, 1915, we noted the recent occurrence of an outbreak of

typhoid fever at the Grafton State Hospital. In the monthly bulletin (No. 12) of the Massachusetts State Board of Insanity for August, 1915, the superintendent of the Hospital reports that the epidemic proved to be the result of two carriers, both patients, one of whom had the disease ten years before and the other five years before. All the twenty-six cases which occurred were among women patients. Prophylactic anti-typhoid inoculation was administered to 1480 patients and 369 employees. There were two fatalities among the typhoid cases.

**AWARD OF AMERICAN MEDICINE GOLD MEDAL.**—It is announced that the award of the American Medicine Gold Medal for the year 1915 has been conferred upon Dr. Rupert Blue, Surgeon General, U. S. Public Health Service, as the American physician who, in the judgment of the donors, has performed the most conspicuous and noteworthy service in medicine and surgery during the past year.

**BOSTON SCHOOL PHYSICIANS TO BE CONTROLLED BY THE SCHOOL BOARD.**—On September first the Boston School Board took formal charge of the examining physicians for the schools, hitherto under the jurisdiction of the Board of Health. Physicians receiving appointments as school physicians must now pass a civil service examination. This examination will take place on September 23.

**BOARD OF HEALTH OF THE CITY OF PORTLAND, ME.**—The report of the Board of Health of Portland, Me., for the year 1914, records that among contagious diseases, typhoid fever leads in number of cases. There were 217 cases with 20 deaths. Of scarlet fever there were 126 cases with three deaths; diphtheria 105 cases with 11 deaths; eight cases of smallpox and three of infantile paralysis. Of all causes of death, nephritis, with 120 deaths, leads, pneumonia coming second. The total number of deaths was 996 and of births 1,460.

**DEPARTMENT OF HEALTH TO BE NOTIFIED OF DIARRHEAL DISEASES.**—The following letter has been mailed to every physician in the city of Boston by Dr. Francis X. Mahoney, Commissioner of Health:—

"The Health Department wishes to use all the means in its power to reduce the number of cases of dysentery and all deaths from this cause among infants. It is now required by law that all cases of dysentery be reported to the department at once in writing, and this matter is called to your attention, in order that there may be no chance of a misunderstanding. It is not the intention of the department to interfere in any way in the care of these cases by the physicians, or to quarantine them. It is highly important that immediate notification be made of all diarrheal conditions among in-

fants, that the milk supplies and the sanitary conditions of the homes may be investigated.

"Postals for notification of reportable diseases are furnished free."

**RESULTS OF MEDICAL INSPECTION IN BOSTON SCHOOLS.**—The success of thorough inspection of school children as to eyesight and hearing defects is shown by a comparison of the results of inspection in Boston schools for the years 1907 and 1914. In 1907, of the 83,909 children examined 31.5 per cent. were found to have defective vision, and 8.13 per cent. defective hearing. In 1914 only 12.36 per cent. were defective in vision and 2.7 per cent. in hearing.

**ADEQUATE MEDICAL INSPECTION FOR RURAL DISTRICTS.**—Dr. Merrill E. Champion, State District Health Officer, in a recent address, called attention to the pressing need of adequate medical inspection for rural schools and the difficulty under present arrangements of such inspection being provided. He urged the appointment of a full-time medical inspector and a trained nurse and that a living wage might be provided, he suggested the banding together of several towns in the support of a physician and a nurse who could by this means afford to devote their whole time to the care of the school children.

## Obituary.

### CARLOS J. FINLAY, M.D.

Dr. CARLOS J. FINLAY, of Havana, Cuba, who died on August 21, 1915, in Savannah, Ga., was born at Puerto Principe, Camaguey, Cuba, in 1833. After obtaining his early education at the Lycée de Rouen in France, he studied medicine at the Jefferson Medical College in Philadelphia, from which he received the degree of M.D. in 1855. Returning to Cuba, he began the general practice of his profession at Havana and soon became one of the leading physicians of that city. As early as 1881 he became a delegate from Cuba to the International Sanitary Conference held at Washington, D.C., in that year.

It was at this time that Dr. Finlay first announced his theory of the transmission of yellow fever through the bite of the mosquito. He had observed a correspondence between the autumnal increase of yellow fever and the abundance of mosquitoes at that period, whereas during the summer, when mosquitoes were few, the disease was not extensively prevalent. He therefore began a series of experiments which ultimately led to the great discovery of the methods of transmission and control of yellow fever.

In Augustin's "History of Yellow Fever" (New Orleans, 1909) Dr. G. Farrar Patton writes as follows of Finlay's early work in this

important investigation: "We cannot pay too high a tribute to the acumen of Dr. Carlos J. Finlay, who, as far back as 1881, not only advocated with absolute confidence the doctrine that yellow fever is conveyed by the bite of a mosquito, but correctly designated, as was proved some years later by the experiments of the United States Army Commission under Dr. Walter Reed, the particular mosquito, and the only one, so far as known, by which the disease is transmitted to man. Unfortunately, Finlay did not at that time, have the advantage enjoyed by later investigators, of deriving helpful suggestions from the knowledge of the rôle played by the mosquito in malarial fever; but reasoning on the simple doctrine of direct inoculation, he thought that the proboscis of the mosquito biting a patient ill with yellow fever, became contaminated with the virus of the disease, which in turn was directly infused into the blood of other persons subsequently bitten by the same mosquito, thereby conveying the disease to those who were not immune. For reasons now well understood, the experiments made by Finlay to prove his theory were uniformly unsuccessful, but he remained unshaken in his belief that the particular house, mosquito formerly called *culex fasciata* and now named *stegomyia calopus*, which he observed to be invariably present in connection with yellow fever, was the active agent in its transmission, and, unlike many pioneers who have advocated truth before the world was ready to receive it, he lived to see his faith triumphantly vindicated." If Finlay could have ascertained what Carter later determined, that a definite period of time must always intervene between infecting and secondary cases, he would hardly have failed to keep some on his infected mosquitoes over that period. It was impossible, however, to make this observation in Havana where the disease was continuous. For twenty years Finlay was regarded as a hopeless visionary until the work of Reed and his associates in 1900 and 1901 demonstrated the accuracy of his hypothesis. Finlay's position prior to their demonstration is, perhaps best stated in his article on "Mosquitoes Considered as Transmitters of Yellow Fever and Malaria," in the *New York Medical Record* (1899, Vol. 55, p. 737).

In one of his monographs Dr. H. R. Carter of the United States Public Health Service, refers to Finlay's work on yellow fever as "a very beautiful piece of inductive reasoning." His experience was the unusual one of a scientist who, discovering a truth, but unable to demonstrate it, lived to see his belief established by the work of others. As Patton in his article concludes, "It takes away nothing from the imperishable fame of Reed and his collaborators to give Finlay due credit for abstractly reasoning out a great truth and for so steadfastly upholding his belief despite his inability to prove it."

In 1902 Dr. Finlay was appointed chief sani-

tary officer of Cuba and in 1903 he again went to Washington as the Cuban delegate to the International Sanitary Conference in that city. He remained as sanitary officer of Cuba until his retirement in 1908. Since 1909 he had been honorary president of the Junta Nacional de Sanidad Beneficencia.

Dr. Finlay was a member of the Havana Academy of Sciences, the Sociedad de Estudios Clinicos of Havana, the Société Scientifique of Brussels, the Royal Society of Arts of London, the College of Physicians of Philadelphia, and a member of the American Public Health Association. He was also a Fellow of the Society of Tropical Medicine and Hygiene of England, an honorary member of the American Society of tropical Medicine, and the Société de Médecine Tropicale of Paris, and a corresponding member of the Académie de Médecine of France.

### Miscellany.

#### MONTAIGNE ON THE MEDICAL EFFECT OF IMAGINATION.

In the twentieth chapter of the first book of his essays Montaigne quotes the two following cases illustrating the medical effect of imagination in the relief of bodily afflictions:—

"Some man peradventure, by the effects of imagination leaveth the pox or Kings evill heere, which his companion carrieth into Spaine againe: loe heere why in such cases men are accustomed to require a prepared minde, wherefore doe Physitians labour and practise before hand the conceit and credence of their patients, with so many false promises of their recoverie and health, unless it be that the effect of imagination may supple and prepare the imposture of their decoction? They knew that one of their trades master hath left written, how some men have been found in whom the only sight of a potion hath wrought his due operation: All which humor or caprice is now come into my minde, upon the report which an Apothecarie, whilome a servant in my father's house, was wont to tell me, a man by knowledge simple, and by birth a Switzer; a nation little vaine-glorious, and not much given to lying, which was, that for a long time he had knowne a Merchant in Tholouse, sickish and much troubled with the stone, and who often had need of glisters, who according to the fits and occurrences of his evill, caused them diversely to be prescribed by Physitians. Which being brought him, no accustomed forme to them belonging was omitted, and would often taste whether they were too hot, and view them well, and lying along upon his bed, on his bellie, and all complements performed, only injection excepted, which ceremony ended, the Apothecarie gone, and the patient lying in his bed, even

as if he had received a glister indeed, he found and felt the very same effect, which they doe that have effectually taken them. And if the Physician saw that it had not wrought sufficiently, he would accordingly give him two or three more in the same manner. My witnessesse protesteth, that the sick man's wife, to save charges (for he paid for them as if he had received them) having sometimes assaid to make them onely with luke warme water, the effect discovered the craft, and being found not to worke at all, they were forced to returne to the former, and use the Apothecarie."

"A woman supposing to have swallowed a pinne with her bread, cried and vexed her selfe, even as if she had felt on intolerable paine in her throat, where she imagined the same to sticke; but because there appeared neither swelling or alteration a skilfull man deeming it to be but a fantasie conceived, or opinion, apprehended by eating of some gretty peice of bread, which haply might prick her in the swallow made her to vomit, and unknowne to her, cast a pinne in that which she had vomited. Which the woman perceiving, and imagining she had cast the same, was presently eased of her paine."

## Correspondence.

### PARIS LETTER.

#### THE REVERSE OF THE PICTURE.

(From Our Special Correspondent.)

PARIS, August 21, 1915.

**Mr. Editor:** I have recently spent a couple of weeks up in the high valleys of Savoy, on the Italian frontier, and both on the voyage there and back, and during my stay in that beautiful though little-frequented region, I have been able to observe a side of this war so far entirely unknown to me: how it really affects the French people, and what they think on the subject,—for it is a time-honored saying that Paris is not France, whatever we live in the capital may believe in that respect. Both going and coming the trains and stations were simply swarming with the military; not only was every seat taken, but even the corridors were packed, while as for the bediam at such centres as Dijon, for instance, it beggars any attempts at description. The French soldier is quite unrecognizable now; this year in the open, combined with a light greyish-blue uniform, and the quiet but manifest confidence in himself that he has regained, have made him into a transformed being. A large portion of these men were going home for the first time since the outbreak of the war, on harvest leave; there was then every justification for noisy conduct, horse-play and perhaps bragging. But we saw practically nothing of the sort. The men were loaded down with rifles, knapsacks, side-bags, wine flasks, and cartridge-pouches, until we simply didn't know where to put things; but good-humor overcame every obstacle, each one did his best; and we all ate, drank and talked together as though we had pigged-it in the same trench all winter. The usual stand-offishness of the French when travelling has vanished into thin air; people now speak to each other at a glance, before they are really seated. But in spite of all this good feeling, and the natural rejoicing at seeing home

once more, there was no noise; these men realize that this war is a deadly business, that it is still anything but finished; and they are consequently in no mood for merriment.

Besides, this looking death in the face night and day for month after month necessarily changes a man's nature; we remarked over and over again the seriousness of all these men, and the total disappearance of the foolish *blague* that used to be such a trying feature in an ordinary French crowd, where men of 25 would be performing antics that could at best be tolerated in boys of six or eight.

We had quite a number of wounded with us, chiefly men discharged from the ambulances and on their way home to convalescence, many with a limb gone, others on crutches, and all with the thin, white, drawn face that everyone now knows so well, and that tells of months' of suppuration. The behavior of the crowd to these poor fellows was a perpetual delight; to have been wounded in the war makes you *ipso facto* everyone's brother. To the other chaps in blue you are at once *monsieur*, and addressed in the second person; to the ladies, *monsieur*, without further ceremony. A tall, pale artilleryman, with a stiff knee, crutches and two medals, appears at the door. The compartment is crammed, but that makes no difference; everybody instantly hops up and lends a hand, he is hauled in bodily: "*Donnez-moi feu biquilles*," "*Mettez-vous là, monsieur*"; and one or two sturdy chaps are unhesitatingly hustled out into the corridor already packed to death, while the new arrival is made comfortable, though profuse with apologies. Then we offer cigarettes, our wine-bottles, or fruit, and get his story out of him. The entire scene is simply a revelation, and rather makes one think that human nature may have some excuse for existence, after all. When you think of the reception anyone would have got only a year ago, if he had tried to squeeze into a compartment that already had its proper complement!

We finally branched off onto a side line, and there the crush decreased, although the gentlemen in pale blue were still everywhere to the fore; many of the uniforms were sadly faded by hard service; but all had been cleaned of the trench-mud as far as possible, so as to present a creditable appearance on arriving home. In our compartment were three men of the Reserve, smoking and passing around the practical French army-flask, the one with the little air-tap that enables you to extract its contents without going through the asphyxiating slopper usually associated with drinking from a bottle. The wine in this district is very cheap and only slightly alcoholic, and the soldiers get it at the stations for about cost-price. One of these men offered me his flask, which I courteously declined, not wishing to diminish the supply available until the next halt; but bless you! that didn't answer, by any means. The excellent chaps' feelings were badly hurt, and he remarked in dignified remonstrance: "I did not suppose you would refuse a *brave soldat* when he offered you the wine of his country." So I made amends and harmony was restored.

We were to spend the night at Cluny, which is mentioned in the books as having been the intellectual capital of Europe in the 12th century, the great Benedictine abbey that at one time had some 2000 religious houses dependent on it! This we felt we ought to see. But it turned out rather a disappointment, since here, as pretty much all over France, there again appears the utter lack of sentiment, not to say evident hostility that the French have shown to their great ecclesiastical monuments of the past. Not only have they either pulled them to pieces, or let them fall in ruins, but of what remains they have made such usage as deliberately to throw discredit on them. Thus Cluny, and Bee, both mentioned in the Anglo-Saxon Chronicle, the latter the Abbey that produced the first two archbishops of Canterbury, Lanfranc and Anselm, are now stud-farms; Fontevraud, Clairvaux

and Citeaux, penitentiaries,—and so on. Anyone who has travelled in England, and recalls Tintern, Furness, or Fountains Abbey, than which there is certainly nothing more completely beautiful in Europe, whatever the Orient may have to show, is simply horrified to see the fate that has befallen the great French abbeys. Cluny is a quiet, picturesque *ville de province*, in a smiling, very fertile valley near Mâcon; and its shady streets and arbour'd walks are the frequentation of countless soldiers convalescing from less important wounds not requiring special attendance or first-class surgical skill. This is now the case all over France.

But the following evening we were away out of the busy world in a tiny hamlet of a remote Savoyard valley at the only inn the place afforded, though it was very comfortable. Here the scene was the same as everywhere in France, everyone's menfolk at the war, and the women, children and elders "carrying on." It is a remarkable sight to see fields, meadows, orchards, vineyards and livestock,—everything cared for just as usual, with all the able-bodies gone! Anyone who is anxious really to concentrate on a worthy topic will find an ample field in the French women of 1914-1915. They all say that the only real pinch will come when the mowing has to be done, as that is heavy work for women; all the remainder they can gladly tackle, and the way the endless vineyards looked all through that invaluable stretch between Dijon and Beaune, in which are produced the finest wines of the earth, was a witness to what women can accomplish when their back is to the wall, and it is a ground-hog case. It is often said by the knowing that the women are the backbone of France. Personally I am so terribly pleased for the moment with the French soldier, that I find it hard to be fair to anything else; but certainly, what I saw of those women up in Savoy filled me with unbounded admiration. One of the most striking examples I met right in this little hamlet; at the end of five minutes she and I nearly fell on each other:—necks! I went into a tiny shop, to get some local picture-cards. The dame at the counter saw I was a stranger, learned I was from Paris, and then of course at once, "What did I think about the war?" Henceforth was the inevitable: "Monsieur habite Paris? Que dit-on à Paris de cette guerre?" and this is what she told me: Lost her husband some years ago, and remained with one only son, steady and satisfactory in all respects, with whom she carried on this business, and had been doing very well. Then came the war, and off he went to Alsace with the rest of the Chasseurs alpins, who originate in this district, among the mountaineers, guides, chamois-hunters, poachers, etc., fine shots, most of them, and runners on skis. They say that music softens the human heart; but I am afraid that the same cannot be advanced for war. This woman was evidently the best creature in the world, motherly, kind, everything that could be wished; yet this is the style in which she talked. Her worthy offspring had, it seems, right at the beginning of the war, ambushed a motor-car full of German officers on the frontier at a railroad crossing by letting down the bar, and had pumped the car full of lead as the drivers necessarily came to halt, sending three of the foes to the next world and bringing in the other two prisoners. "Oui, Monsieur," said the proud mother, with tears of joy in her eyes, "Il en a descendue trois à lui tout seul, et les deux autres se sont rendus; ensuite il a été félicité par son capitaine devant toute sa compagnie!" Soon after that he had some fingers shot off, but resumed his place in the ranks as quickly as possible. Finally, however, a big shell lifted him into the air with some tons of earth, and as he came down he ruptured himself, damaging a knee badly at the same time, something with the knee-cap, I gathered. And now the fond mother's main anxiety was to know whether I thought he had been sufficiently knocked to pieces to warrant an honorable discharge and his return to the parental hearth?

Up at the remote village where we finally settled down it was the same thing—all the husbands and brothers at the front, but happily but few men killed so far. The inn was run by an old couple, with the help of a daughter. This daughter's husband disappeared before Arras in October last, and has not been reported killed. Now as men are constantly being found after a silence of six, eight or ten months, this good woman still hopes on, although I fear that her chances are slight. She has four little ones, the last born soon after her husband left for the front. In that small group of houses on our side of the rushing mountain torrent there were no less than seventeen small brats with their fathers off at the war, and a mighty lively crowd of huskies they were, I can tell you, when school-hours were over and the band of them issued forth to seek what it could devour!

One of the most interesting types I met up there was a man I took as guide, a sergeant of Chasseurs, home on convalescent leave after an illness. This man was a professional poacher of chamois, quite a superior character, and his tales about stalking Germans in the winter forests of the Vosges were most thrilling. It seems that he is a known shot, at home—but there was no bragging about his stories; in fact, it was quite apparent that he had horror of killing a fellow-being, and was not very keen to speak about it. Yet by reading between the lines you could see that whenever there had been a particularly tough job on hand in his trench, he had been the marksman told off for it, and that he had generally accomplished what had been expected of him, for he followed up his, "J'en ai descendu quelques-uns," with a significant look that spoke volumes. He had one tale about suddenly and unexpectedly coming across a huge German when out an *éclaireur* in the forest, and of jerking the butt of his rifle to his shoulder and instantly firing, that was most palpitating. As he said: "At moments such as that you must not lose time in thinking; if you don't get your man, he gets you,—that is all there is to it." The solution he proposed for the war was—at least so far as his corps of Chasseurs alpins was concerned, original, if nothing else. He said: "We are nearly all good shots, and afraid of nothing. If they would let each chasseur free from military service, and authorize him to go home, as soon as he had brought down five Germans, it would not be long before the entire battalion would be back here again among the mountains!" We went up a fine peak together one day, in such perfect weather as I have rarely seen, and had the view of a life-time: the entire chain of the Alps, from Chamounix, all along the Valais giants (with the Overland behind them), Savoy, Cogne, the Dauphiné, clear to Monte Viso without a cloud; it was a marvellous panorama. Now as we sat up there, eating a hasty lunch, thinking of the beastly 300-metre ice slope we had to get down again before the sun grew hot enough to make the laboriously-cut steps unsafe, what do you suppose my guide remarked, with an infinite depth of feeling? Every climber knows the almost uncanny stillness that reigns on the point of a sharp peak, no matter how much wind there has been on the way up; well, here is what he said: "At least you cannot hear the cannon up here!" He was one of the very few guides I have gone with who really loved the mountains. It was fairly pathetic to hear him speak of how in two or three weeks he should again have to tear himself away from all that was dear to him, and return to the trenches; he seemed to have an absolute horror of the sound of cannon, in particular, and was constantly referring to it. He was married, with two small infants, and had just finished a house in which he had proposed to take on summer-boarders, when all his hopes were knocked on the head by the outbreak of war. I thought his passion for hunting would be the end of us, before the day was over, since instead of looking after the rope, and keeping an eye on his charge, he was everlastingly searching around for chamois with

a spy-glass. At our feet, when we were at the top of the mountain, lay spread out the entire district of Cogne, where the king of Italy has an immense preserve of chamois and bouquetins. I thought I was entertaining Jean with an account of this game, of how fearless it is, of how the cliffs over there simply swarm with it, and how a family of bouquetins nearly finished off my party one day by sending down a shower of stones on us; but apparently I had made a *fauz-pas* somewhere.—the guide looked neither interested nor pleased! Finally I ascertained that he and some friends on a certain occasion had crossed the frontier stealthily one night to do some judicious weeding out of the King's herds at early dawn, but had been caught by the *garde-chasse*, heavily fined, and promised a spell of prison for the following offense!

Good old Jean! I don't know when I have warmed up to a public malefactor as I did to him. He was simply a splendid chap! And when this dreadful war is over, and this vast ocean of misery has had time to subside a little, I shall not fail to find out whether or not Jean has come through the conflict all right? If, as I hope, he does, I propose to go down there and stay with him a bit; and when I do, I shall be provided with the wherewithal to give him and his family the time of their lives. It is remarkable to note how all these men who have been through the fiery ordeal, and have experienced the real thing, think alike on the subject and on the future outlook: a quiet fatalism, as to their chance of life; but an absolute certainty as to the ultimate result: "Oui, c'est long; *mais on les aura*!" This is the alpha and omega of their philosophy.

"S."

#### AN AMERICAN SURGEON IN ITALY AND AUSTRIA-HUNGARY.

(From Our Special Correspondent.)

AMERICAN RED CROSS MISSION,  
K. U. K. RESERVE SPITAL NR. 4,

60. MEXIKOI-UT VII., BUDAPEST, July 26, 1915.

*Mr. Editor:* Doubtless one might find a more propitious time for travel, but the novelty of being on a ship belonging to one of the belligerents, having more "bundles" than would be healthy, even in normal times, adds spice to the adventure that in all probability is never to be duplicated. We had so much cargo that half of the water tanks had to be emptied, so as to keep the water line showing. The weather was very rough, and the wind high, on account of storms that persisted in following us, in spite of full speed and varying the changes of direction. The course was not plotted out for reasons best known to the commander—this added much to the thrill of the trip—but I venture to say it would have been very interesting to note the additional leagues sacrificed for safety. However, by the time we reached the Azores, we were caught between two heavy storms. These prevented us from landing, and a whole twenty-four hours was lost in sailing back and forth along the island, until finally the wind became so high that we were forced to put out to sea. The next noon we were able to get on to the lee side of the island and run into a little cove, and land our passengers by means of small boats, a thing that has not been done for months and months. However, "it's an ill wind"—as the saying goes. The sight of land had a very pleasing effect on those afflicted with "*mal de mer*," and the warm sun and the aroma from the variegated green fields, together with the calm sea, was better than all the "dope" ever written about in the *Pharmacoepias*. From what I could see of those islands, with their little Dutch windmills, I think I should like to spend a few months there. It is interesting to note that, although it rains nearly every day, there are



BUDAPEST: DIE FISCHERBAUER MIT MATHIAS-KIRCHE.

always parts of the islands where one can enjoy fair weather, and as they are a matter of only a few miles in breadth, it is a very easy matter to drive into these places.

Our delay at the Azores made a difference of about thirty-six hours in getting to "Gib," where we found nasty rainy weather, which had been the program for the past ten days or so. Here we were closely examined for contraband goods. The ship anchored long enough only to discharge the Harvard Unit and a few passengers and to replenish our much-needed water supply. Only British subjects were allowed on shore. Therefore, we missed *gory* (!) bull fight. On leaving "Gib" we ran into balmy weather, and on that evening enjoyed our first Italian sunset. The weather remained warm and clear for the remainder of our trip and the sea calm. Also, there was a remarkable change in every one as soon as we reached the Mediterranean. It seemed as if a great load had been lifted off us—we had a feeling of *safety*. On our way across the Atlantic we had to be very cautious; sail cloth was lashed over the decks and stateroom windows, also over the skylights of the saloons at night, and the life boats were in constant readiness for any emergency that could possibly arise. The whistle blew only at noon, in spite of the frequent fogs; the wireless was not in use except to "switch" the Associated Press news at midnight, so you see we had one of those experiences that you read about in the "*best-sellers*." All the above changed when we entered the Mediterranean,—we felt *free* once more.

On our way to Naples the monotony was broken by the passing of several French and Italian cruisers, and also many, many trawlers bound for the Dardanelles. The evening before we reached Naples we could smell distinctly the odor from Vesuvius.

The day we entered Naples was a beautiful, balmy spring day, clear as a crystal, which showed off its harbor to the best advantage, but I had either too high an idea of it from reading, or else I am no connoisseur of Nature. I was a trifle disappointed, for I could not but think that the Portland harbor was a much prettier one than that of historic Naples. Of course the old sentinel Vesuvius was grand and austere, with his halo of sulphur di-oxide.

As we neared the dock we were greeted as usual by the classical parasites for which, plus the squalor, Naples is noted. We had great sport watching these little beggars diving for money, and listening to the Neapolitan musicians. Just to show you the feeling of the people at that time, one of the ladies on deck threw a Krone in the water. The little urchin refused to dive for it, and instead showed his disdain for the K. U. K., by putting his thumb to his nose and extending his fingers. Thus you will understand why I issued orders to the party not to speak German while on Italian soil. As the boat was not to sail for over twenty-four hours, we had a chance to see some of Naples. First we hired an auto and went to Pompell, having lunch at the Hotel de Suisse, which is at the



K. U. K. RESERVE SPITAL NO. 4. A. E. C.

entrance to the reservation. After giving it a thorough inspection we started back. The scenery was beautiful. We were much interested in seeing the spaghetti shops and most of all, to the amusement of our guide, the way they deliver the milk (either cows' or goats'). It is delivered to the door, absolutely fresh and warm, and it is the only way you can be sure that the product comes directly from the producer to the consumer. We had opportunity to see another interesting custom, as you may remember, it was the Wednesday before Easter that we were in Italy, Naples, to be exact, and on this day the farmers bring in lambs and sell them on the streets. These lambs are killed for the Easter Sunday dinner, and it is very interesting to see the children leading a little lamb home.

After we had bought the usual things that every one does in Naples, viz. gloves, we had a real Neapolitan dinner. The next day we took the same guide and visited the important churches, and Museum, getting back to the boat just in time to get on board. Our trip to Genoa was uneventful except for a most glorious moon.

We arrived in Genoa on Good Friday A.M., but owing to delay it was not till after lunch that we could go ashore. Oh! what a difference. Genoa and Genoese stand for the things that Naples does not, viz.: no beggars, clean streets, thrifty business and industry, and education. This birthplace of Columbus prides itself on being like an American city. We visited the principal points of interest here, including the world renowned Campo Santo, the description of which is beyond words.

We were unfortunate enough to stop off at Milan long enough only to lunch and see the wonderful historic cathedral and see a few of the principal streets, as we wished to spend Easter in Venice. Suffice it to say that Milan is a real metropolis and I imagine worthy of quite a protracted visit.

Inasmuch as there were very limited train service and also accommodations,—no sleepers was the main complaint,—we decided, not unwisely, to spend Easter in a holiday in Venice (the construction of this sentence is very poor) and now that things are as they are I am not at all regretful. We went to high mass in St. Mark's in the morning and also fed the pigeons on the Piazzetta, and, after we had had lunch, instead of taking steamer, we took a gondola, and were sculled over to Lido, the Coney Isle of Venice. Here we had a very enjoyable afternoon watching the people promenading, engaging in all sorts of amusements, and we partook of our "usszona kavé," which is Hungarian for Jause, on a veranda overlooking the Adriatic, and watching the people in bathing. In the evening we took another gondola and saw Venice by moonlight, a truly wonderful spectacle. One of these days, if Venice is still on the map, I want to see one of its carnivals.

In order to get to Wien we had to leave Venice at the ungodly hour of five A.M., but when the weather is mild, and when there are new sights to see, one does not mind early rising. It is the most delightful trip from Venice to Wien—words will not in any way describe it. The mountains, the valleys, the newly-planted fields, the villages and all, one would have to be a novelist of the first water to attempt to give even the faintest idea of the route. Throughout the country everyone we came in contact with treated us with great pains, but we could not but help noticing that we were under a very careful chaperonage, and as we approached the frontier, it became more and more evident. On the train to Pontebba we were under strict surveillance by a plain-clothes man who was relieved at every stop. It was very easy to see that the country was mobilizing, for we literally stumbled over men in uniform everywhere, and on the train there were hundreds of men being put off at every station on the way towards Pontebba. We could see the guards and trenches and batteries from the windows. Everyone we saw had an air of business and secrecy tending almost to furtiveness, and if we could have got them to talk we would have had no end of news.

Upon reaching the border, things were more agreeable; it seemed as if everyone could not do enough for us.

I will not bore you with any more of my experiences. Suffice it to say that I am here in a beautiful city and pleasantly located. I have not had time to get around to the clinics, as my mornings are taken up with this work, but I long for some surgical work.

Sincerely yours,

RICHARD METCALF, M.D.

#### AN AMERICAN SURGEON IN FRANCE.

(From Our Special Correspondent.)

PARIS, August 4, 1915.

*Mr. Editor:* One need not be in France many hours before realizing that it is indeed a nation at war. Crossing, as I did, upon a French boat, that fact became fairly well established even before we sighted the shadowy hills of "la belle France." Of the not very numerous passengers, at least half were intimately connected with the war. Several of the men were coming to enlist. One of them, chef in a New York hotel and a naturalized American citizen, explained to me that he would have to work for the rest of his life alongside of men who would talk of nothing but the war. If he did not enlist, he would be compelled to be silent for the remainder of his days. There is much philosophy in his words.

Of the women, one had lost a husband in the war, and, travelling with her little boy of three, she was going to find his body and remove it to the family plot. Another was crossing to join her husband who had been injured in the service. A third told me she had five brothers and nine cousins at the front, and that she had not heard from her relatives at Lille for almost a year. It is surprising how cheerful people can be under such circumstances, but the French are optimistic and great believers in Destiny. "Why worry about submarines?" said one to me. "If we are to die that way, we shall not be hanged." He was right not to worry, for, aside from the alarm caused by several spar buoys at the entrance to the River Gironne, which were thought by the uninitiated to be periscopes, our crossing was free from any suggestion of naval warfare.

We landed at Bordeaux in the teeth of the military authorities. An entire tribunal sat upon our passports, so to speak. The court was presided over by an elderly French officer in uniform, with several dec-

orations on his chest, and a most genial and quizzical expression.

Bordeaux was full of soldiers, some in the old red-trousered uniforms of Napoleonic fame, much the worse for wear; others in the neat bluish-grey uniform of the most recent vintage. The station was full of them; every train carried them away. To witness their leave-taking is to comprehend to some degree the real meaning of war to the enlisted man, and even more to his family.

The women seem brave; the majority are in mourning, but it is distinctly French mourning, with a certain dash which seems to leaven the sorrowful side.

At every station soldiers boarded the train. For the most part they looked like earnest, strong men in whom one felt instinctive confidence. Ladies collecting for the Red Cross passed through the train at every stop. It seemed as though at least three quarters of the people of France were directly interested in the war. The fields, nevertheless, are well cared for. It is harvest time: the wheat is being gathered.

We reached Paris after dark. It is indeed unusual to see a great city carrying on its activities under cover of darkness. Jingling cabs emerge from dark streets; taxicabs dash upon the unwary one from the gloom.

I attempted a stroll, but was shortly collared by a huge, bearded French infantry man who was "illuminated" somewhat more than were his surroundings. He insisted upon our having a glass together, which we did. We must have been a queer pair, but nothing seems to attract attention nowadays.

He was to leave for the Dardanelles, he said. For just a year and a day he had been mobilized, and although he illustrated by eloquent gestures just what he would do to the Turks, one felt him to be a mere tool, unintelligent and not understanding, in the great machinery of war. He was a farmer, he said; he had a wife and three children. He was gaunt, clumsy, thick of speech: he would accept nothing but one glass of wine with "a comrade."

Before very long I shall hope to be able to write you a letter more from a medical point of view.

Yours very sincerely,

G. G. S.

#### BLOODLETTING IN HEART DISEASE.

WESTPORT, N. Y., September 9, 1915.

*Mr. Editor:* In reading the discussion of the papers on heart disease, in a recent issue of your JOURNAL, I was very glad that physicians of highest reputation, like Drs. Shattuck and Christian, spoke strongly in favor of venesection in certain cases of cardiac disorder. I shall hope that their voices will not be ignored at the present time. Too often I see instances when I am confident life is shortened or lost by the unwillingness of physicians to use the lancet and thus aid markedly and rapidly a struggling and over-taxed heart. If venesection is objected to, the application of a few leeches to the precordial region will do wonders at times. Sad to write, however, it is today, difficult to obtain leeches. Even in our large city pharmacies, they cannot be purchased because they are not kept in stock. It is among only a few German druggists, like Elmer and Amend, of New York City, that they are constantly kept on hand. Not long ago, I had this practical experience, and although I obtained the leeches for the patient I saw in consultation, consent was not given to the family physician to apply them. In the over-distended heart of pneumonia, particularly where the right heart is acutely enlarged and the jugular veins are largely increased in size and pulsating visibly, while the lips and fingers are cyanosed and every breath is a labor and torment, heart stimulants are absolutely worthless unless there be bloodletting freely, either by venesection, or locally with leeches. There is no need, in

my judgment, to follow it with a saline infusion. Even in instances where, perhaps, too much blood has been taken, the danger to the patient is increased, rather than diminished by this means. I much prefer a rectal injection of salt and water with some black coffee, if required.

More than once, I have seen a patient, as I believe, die from the use of salt solution by the vein after seemingly, a successful venesection. A most regrettable fact connected with modern, advanced scientific treatment, is the abandonment of a method usually, which properly practised, is of great value to many sufferers.

In times of great stress and imminence, the now somewhat "lost art" of bloodletting, as Dr. Samuel D. Gross, that great American surgeon had it, is unequalled in its power for good.

BEVERLY ROBINSON, M.D.

#### BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING SEPT. 4, 1915.

No contributions for the week ending Sept. 4, 1915.

Previously reported receipts..... \$7814.84

Total receipts..... \$7814.84

Previously reported disbursements:

1225 standard boxes of food @ \$2.20 .. \$3575.00

1274 standard boxes of food @ \$2.30 .. 2930.20

353 standard boxes of food @ \$2.28 .. 804.84

Total disbursements..... \$7310.04

Balance .....

\$ 504.80

F. F. SIMPSON, M.D., Treasurer,  
7048 Jenkins Arcade Bldg.,  
Pittsburg, Pa.

#### RECENT DEATH.

DR. SAMUEL W. DANA, who died on September 1 in New York City, was born at West Lebanon, N. Y., in 1827. After obtaining his preliminary education at the Kimball Union Academy he received the degree of A.B. from Dartmouth College in 1854, and that of M.D. in 1858 from the New York College of Physicians and Surgeons. Upon graduation he immediately settled in New York where he continued active in the practise of his profession until his retirement in 1908. He was a member of the New York Academy of Medicine, the New York County Medical Society and many other organizations. He is survived by two daughters and one son.

#### APPOINTMENT.

DR. J. A. MEARIES has been appointed professor of physiology at the Medical School of the University of Durham, Newcastle-on-Tyne.